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The Impact of BRT Systems on Local Economic Development

The Case of Meadowlands, Soweto











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A research report submitted in partial fulfilment of the requirements of the Degree of Bachelor of Science in Urban and Regional Planning with Honours

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ABSTRACT

Urban planners and transportation advocates around the world have become more innovative in confronting regional and global development concerns such as rapid urbanisation, congestion, urban sprawl, climate change, mounting infrastructure costs and high levels of urban poverty. In addressing these pressing issues, among many other policy advances, Local Economic Development and Transit Oriented Development have grown in popularity because they are considered important strategies in the notion of sustainable development. Due to the aforestated economic realities, environmental and social problems, most cities around the world support a change of transport modes in favour of efficient and sustainable mass transit options over private vehicles. As one example of this shift, BRT systems have become widely implemented. There are a wide-ranging reported socioeconomic and environmental benefits associated with BRT systems worldwide. This study focuses on the economic prospects they do offer in the context of Johannesburg. The central objective of this study is then to scrutinise the impacts the Johannesburg's Rea Vaya BRT network has had on businesses and residents' livelihoods in Meadowlands, Soweto.

The study uses a single case study to deepen an understanding of how public transport improvements tend to influence social and economic development strategies in previously disadvantaged, emerging economy areas. The research is based on the critical analysis of literature on TOD and LED and qualitative interviews in Meadowlands and their critical analysis. A set of nuanced perspectives emerged on how the City of Johannesburg might formulate and carry out future TOD policy and projects as a way of effectively facilitating economic development through public interventions. Most pertinently, the study found that the operational Rea Vaya system in Meadowlands has improved access to social and economic opportunities. It has provided employment opportunities and triggered the development of Small, Medium and Micro-sized Enterprises. The provision of BRT services also diversified and improved mobility options in this area. However, affordability still remains a two-fold question among the BRT users and non-users.

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DECLARATION

Date: _____

I, _____, the undersigned declare that ***"The Impact of BRT Systems on Local Economic Development: The Case of Meadowlands, Soweto"*** is my own unaided work and that all sources drawn from have been properly cited and acknowledged through the provision of full references.

_____

Signature of researcher

367221

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I would also like to show my appreciation to **Miriam Maina** for generously helping me access the valuable statistics that came in handy in supplementing the rationale of my research.

My acknowledgement also goes to the **South African Property Owners Association (SAPOA)** for munificently funding my postgraduate studies. Having said that, the interpretations conveyed in this project are those of the author and cannot howsoever be associated with the visions of SAPOA.

To end with, I dedicate this research report to **Ndzima Ethan Ngobeni…**

Matimba Emmanuel Ngobeni

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LIST OF ABBREVIATIONS AND ACRONYMS

BRT	Bus Rapid Transit
CBD	Central Business District
CoF	Corridors of Freedom
CoJ	City of Johannesburg
GCRO	Gauteng City-Region Observatory
GEAR	Growth, Employment and Redistribution
IPTS	Integrated Public Transport System
IRT	Integrated Rapid Transit
JDA	Johannesburg Development Agency
JMPD	Johannesburg Metropolitan Police Department
LED	Local Economic Development
NASASA	National Stokvel Association of South Africa
NPC	National Planning Commission
RDP	Reconstruction and Development Programme
SAG	South African Government
SATC	Southern African Transport Conference
SMME	Small, Medium and Micro-sized Enterprises
TOD	Transit Oriented Development
UNDP	United Nations Development Programme



Chapter One

1 – INTRODUCTION TO THE STUDY

1.1. Background Theory and Research Rationale

The notion of sustainable urban transit has become more pronounced in contemporary development policies and programmes worldwide. In large part, this leads to the adoption and implementation of strategies such as Local Economic Development (LED) and Transit Oriented Development (TOD). This is also apparent in the development initiatives in the Johannesburg Metropolitan Municipality. During the apartheid era, Johannesburg was shaped in a manner that people of different races or population groups as defined in apartheid legislation, were segregated through social engineering and planning systems (Weinstock et al, 2011; Kumar et al, 2012). Generally, black African populations were forcefully removed from areas near city centres to the urban peripheries (Orcutt, 1997). In that manner, they were being moved away from economic opportunities. This hampered the labour force with long distances travelled and excessive costs they had to pay in order to access places of work and commercial centres. At that time, the taxi industry dominated the transport landscape. Orcutt (1997) further elaborates that the apartheid transport policy failed to adequately regulate the operation of taxis, let alone providing other means of mass transit. As a result, the City of Johannesburg (CoJ) adopted the Bus Rapid Transit (BRT) strategies, inspired by the ones in Curitiba and Bogota, as a way of redressing the spatial and public transport issues, as well as the socio-economic imbalances of the pre-1994 South Africa and minimise the number of vehicles on its roads (Dibakwane, 2011; Rea Vaya, 2015). As an international concept, the BRT projects are engineered not only to enhance the public transportation systems, but to also improve social, economic and environmental aspects of development. However, in local discourse, BRT is designed to improve economic transformation by enhancing economic participation of previously disadvantaged people in local economies (Kumar et al, 2012). Included in the reported positive impacts of the BRT are spatial restructuring, increased employment opportunities, income redistribution and economic growth (Jenkins, 2012; Rea Vaya, 2015).

Essentially, a successful operation of the BRT system in the City of Johannesburg is expected to enhance economic development opportunities and the inflow of external investments (Venter, 2013; Rea Vaya, 2015). Literature states that a better-quality urban transportation system plays a significant role in preserving agglomeration economies (Glaeser, 2010). As a working definition, agglomeration refers to the benefits of businesses clustered in the proximity of one another. Essentially, this cluster improves economic development and productivity. Therefore, the underlying endeavour of this research is to test

whether these assumed benefits of BRT are happening in the context of Meadowlands, Soweto. This is done through a number of desktop and empirical research methods. First and foremost, the study explores the relationship between TOD and LED as outlined in the literature. Secondly, it investigates, through secondary sources, whether the BRT system has improved people's access to economic hubs and social facilities around Johannesburg thus far. Thirdly, the impacts of the Rea Vaya BRT system are examined at the neighbourhood level in Meadowlands, Soweto. This is the empirical part of the study seeking to investigate if the BRT effectively accommodates the range of income levels in Meadowlands; whether there are businesses that chose to operate in Meadowlands due to the presence of the BRT and if it enables economic advancement for local communities. The findings and conclusions of this research will contribute to the ongoing analysis on TOD projects and their associated benefits and influences on economic development in Johannesburg and across the country. Ideally, they will help urban planners and government in implementing sustainable and effective BRT projects.

1.2. Problem Statement

The Rea Vaya BRT system started operating in Johannesburg in the second half of 2009. Remarkably, the BRT routes in Soweto, including the one traversing through Meadowlands, were among the first Rea Vaya corridors constructed in the Johannesburg's landscape during the first phase. They have been operational for over half a decade now. While there are a few studies that were conducted on its impacts – e.g. Vaz & Venter (2012) and Bickford (2013) – in South Africa, specific area-based, empirical research looking into the economic effects of the BRT is limited. As far as I am aware, no such research has been conducted in Meadowlands or any emerging economy area to date. Hence, this exploratory study is directed towards discovering to what extent the presence of public transport investment has brought about economic prosperity in Meadowlands.

1.3. Research Question

- In which ways is the Rea Vaya BRT system in Meadowlands impacting on Local Economic Development?

1.4. Sub-questions

- What do the theories of LED and TOD entail, and how are they related to one another?
- How does the BRT policy in Johannesburg intend to promote LED and TOD?

- What impacts, according to primary sources, does the Rea Vaya system have on access to social and economic opportunities in Meadowlands?
  - → In what way do the BRT *bus stops* in Meadowlands have a different impact than BRT *stations* in other areas?
  - → To what extent is there evidence that the BRT system has generated sustainable employment opportunities and affected livelihoods in Meadowlands since its implementation?
  - → To what degree does the BRT currently serve as an affordable and convenient means of mass transit for people in Meadowlands?
  - → What kinds of investment and local business establishments, if any, have been attracted or influenced by the implementation of the BRT project in Meadowlands?
  - → To what extent has the implementation of the BRT enhanced the development of local infrastructure and properties in this area?

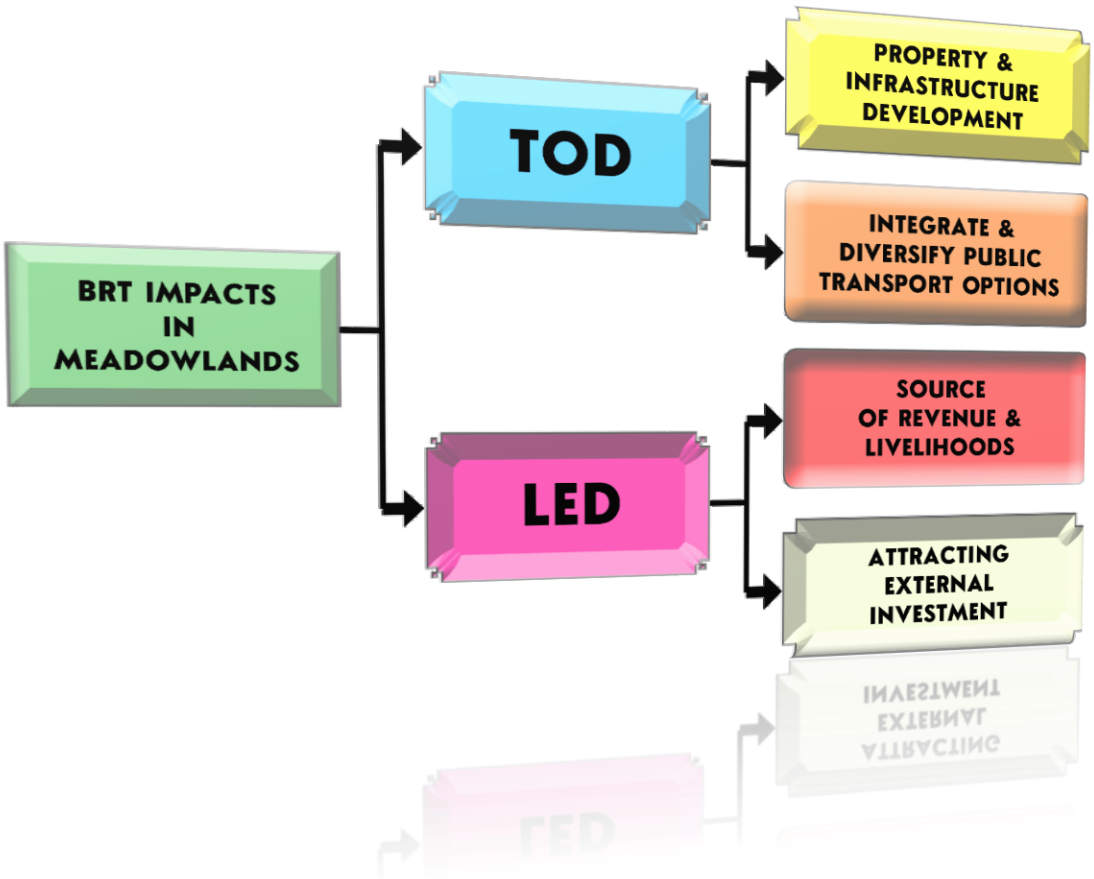


Figure 1: Summary of what the study aims to examine with regards to BRT impacts on LED (Source: author, 2015).

1.5. Research Method

This section introduces the research method and data collection techniques used in the study. It summarises steps taken to achieve the main objectives of the research. It also defines how the required information was obtained and analysed in relation to the research topic. It is essential to note that every aspect of the analysis has been linked with the concept of TOD in relation to its impacts on economic development in the context of Meadowlands. Lastly, the section outlines the ethical considerations that the study took into account.

1.5.1. Research Typology

In order to critically explore the relationship between TOD and LED, the study uses a qualitative research method of enquiry. Since the social and economic dynamics of BRT systems are complex, I deem this approach more appropriate because one cannot just rely on quantities, but on qualitative evidence that helps unpacking these complexities. More importantly, the empirical approach for this study is designed to extract relevant information from interviewees' behaviour and perceptions with regards to subject matters being dealt with. According to Patton & Cochran (2002), qualitative research also uses a detailed, in-depth analysis of small population samples in guiding and corroborating the formulation of well-substantiated explanations of certain aspects or a specific set of phenomena. In addition, conclusions reached in qualitative research are explicitly descriptive. This implies that, although a researcher might have logical interpretations based on sound assumptions, they cannot jump to conclusions without confronting or engaging with issues at hand through verbal exchange and critical observations. Thus, a combined effect of respondents' ideas and viewpoints provide rich insightful results and moments in time. Creswell (2013) supports this analysis by articulating that employing a qualitative approach to any exploratory study provides a comprehensive analysis of research problems since there is always an important discovery documented from using this method.

1.5.2. Data Sources and Requirements

The major component of this study was qualitative through interviews. I used these interviews, enriched by people's perceptions and direct field observations, as the primary data sources. Moreover, my fieldwork was complemented by desktop study, using secondary references, including books, journal articles and policy reviews, as well as the discoveries from the existing empirical research. The theoretical lens informing this research was also formed from statistics, transport trends, demographics and public transport ridership. These numerical data sources were used to give emphasis to certain points and substantiate scenarios. Most importantly, I used the primary data sources to provide a

background to the study area, whereas the secondary ones were used in formulating the theoretical framework for the research.

1.5.3. Data Collection Method

As it was specified before, the basis for this study is the in-depth, semi-structured interviews conducted in Meadowlands. These interviews were done with small-scale business owners and residents with the aim of establishing a tenable interpretation of the impacts the BRT has on economic development in Meadowlands. Typically, this method affords an interviewer the opportunity to extract subjective information from the interviews since there are no rigidly defined variables (Sapsford & Jupp, 1998). According to Bernard (1988), semi-structured interviews also help the researcher to engage with people's perceptions and gain rich and nuanced information with first-hand experience of the subject matter under investigation. On the other hand, these types of interviews usually give participants the freedom to articulate their opinions using their own expressions and phrases. The inclusion of open-ended questions grants respondents an opportunity to diverge from the main research focus and provide alternative methods of examining the research topic at hand.

As indicated in the acknowledgements section, Nyiko and Chester assisted me with my fieldwork. They offered to help me of their own accord since they are familiar with township settings and the objectives of my research. They took notes down and mapped out the spots in which interviews took place while I was engaging with the participants. Since I am more familiar with how diverse Meadowlands is, I asked the respondents about the language they would feel comfortable using during interviews. Languages of their preference included English, Xitsonga, IsiZulu and Sepedi (Northern Sotho) respectively. Interestingly, it was easy for me to translate the audiotaped interviews and notes that were jotted down by my fieldwork assistants when transcribing since I clearly understand and do speak these languages. Apart from interviews and evaluative observations, this research also used international literature to conclude and give a synopsis of how LED and TOD policies are being interpreted and applied in the context of South Africa.

1.5.4. Sampling

The study focused on the business activities that take place within a 750-metre radius from four BRT stops in Meadowlands, on the corners of the following streets: *Forbes & Isigwe; Sanders & Modjadji; Heckroodt & Ondendaal, and Marsh & Msimanga*. I chose to focus on these bus stops because there is a concentration of commercial activities around them. Another reason I considered activities taking place

within a walking distance from the above-mentioned BRT stops is that there is an intense pedestrian traffic. With the help of my fieldwork assistants, I managed to conduct twenty in-depth and semi-structured interviews. This involved ten business owners and operators (big chain stores and SMMEs – formal and informal – for example, butcheries, spaza shops, street traders, cobblers, hair salons and tailors), as well as ten consumers who use the BRT or interact with the local business establishments on a daily basis. Of these ten interviewed consumers, four of them live in the vicinity of the BRT stop that has the most intensity of economic activity (*Heckroodt & Ondendaal*) and two from each of the remaining ones. This has enabled me, as the researcher, to get a broader picture of the roles the BRT system plays in this area by interacting with a variety of stakeholders, explicitly in relation to the intensity of economic activities along the chosen transit route (for the range of questions asked, see Appendices A and B). The main reason for looking into the workings of SMMEs is that they are perceived to be playing a critical role in poverty reduction efforts in most developing countries, South Africa being the case in point. More precisely, they hold the potential to pull neighbourhoods such as Meadowlands out of a sinking boat of economic hardships. Conversely, the sampling of participants was influenced by the constraints of a planning honours discourse – I had limited time and resource capacity to undertake the research.

1.5.5. Ethical Considerations

As a scholar whose research involves human interactions, I had to make certain ethical considerations. Firstly, I deemed introducing the aims of the study to the willing participants critical in this regard. Secondly, I took caution with regards to interacting with foreign nationals, especially shop owners, because of the recent xenophobic attacks that took place in Soweto. At the time when the fieldwork was undertaken, this was still a sensitive issue that needed to be dealt with accordingly. At all times, I provided the participants with relevant information about the study to make them aware of what they were exactly asked to do and the risks that may arise from the evaluation before they take part in order to avoid confusion and expectations. I also ensured that every participant knows that their contribution to the study was voluntary and that they had freedom to withdraw from participating at whatever time if they feel uncomfortable or vulnerable.

Furthermore, I avoided conducting interviews with vulnerable groups. These are people under the age of 18, those who recently occupied land or whose rights of occupation are not yet established, as well as those with cases pending against them and individuals with health challenges such as HIV/AIDS. Moreover, I guaranteed anonymity to respondents by making sure their identities were not disclosed.

Here, people were told that their names will not be included in the final work since almost every one of them asked to remain anonymous. I also ensured that the results of the study do not harm the participants in anyway. Confidentiality was assured by my undertaking not to give the data to anyone else or to use it for any purpose I had not stated in my introduction to the respondent. With the consent of participants, some interviews were audiotaped.

1.5.6. Ethical Issues that arose during Fieldwork

In the fieldwork we encountered a few ethical dilemmas. However, all of them were overcome. To exemplify, although my fieldwork assistants and I provided proof of who we are by producing our student cards, some of the street vendors expected us to buy a fruit or two from them to make certain we were not working with the Johannesburg Metropolitan Police Department (JMPD) for the reason that they sometimes get harassed by opportunist law enforcers asking for bribes. This tended to be the case with those who never wished to be on the wrong side of the law. Nonetheless, after complying with their demands, they comfortably took part in the study. In order to facilitate the interpersonal interaction and maintain the integrity of our dialogue, I started off by asking them a few, non-directive questions about their business, life experiences and other activities they undertake, in the area or elsewhere. This allowed them to be more comfortable in sharing their life experiences with us. In addition, most BRT users, although hesitantly, asked if they were sharing their information with the right people. This was in the sense that, prior to introducing ourselves, they thought we were journalists since we stood out that we were looking for potential participants (Rea Vaya customers) at the bus stops. Some of the local retailers thought the same. This made me cognisant of how important it is to establish some form of relationship with the potential interviewees before getting them to participate in the study in order for them to feel free to express themselves more enthusiastically.

1.5.7. Shortcomings of the Study

Provided that this study has reached its set objectives, I still think there are other aspects that could have had implications to the interpretations of research findings. Before undertaking the fieldwork, I planned on getting two sides of the story on TOD and LED. Basically, I aimed at exploring the research questions I set out by means of obtaining valuable facts from interacting with the SMME operators, customers and municipal officials on public transport and economic development strategies put into practice in the Meadowlands area. Nonetheless, the study only involved Meadowlands residents and business people. Unfortunately, during the course of the study, municipal officials from the CoJ departments of Transport and Economic Development were not available for comment. Although I

critically evaluated the LED and TOD policy documents, my wish was to also get a first-hand information on how these departments carry out their programmes in the context of Johannesburg, Soweto in particular.

1.6. Conclusion

This section gave a snapshot of what the research aims to achieve when assessing the notions of TOD and LED in Meadowlands, and Johannesburg in general. The use of qualitative method for this research offered a rounded analysis of respondents' fascinating experiences of their day-to-day lives. This implies that findings and deductions from the conducted interviews were not generalised, but gave a deeper case-specific understanding of the study area. I was cognisant that, by default, every research involving human participants requires ethical considerations. Hence, the main objectives of ethical considerations in this study were to maintain the ethical standards set out by the University of the Witwatersrand, including protecting the rights, autonomy and safety of participants.

1.7. Chapter Outline

This study consists of five chapters. They are as follows:



Figure 2: Chapter outline (Source: author, 2015).



Chapter Two

2 – LITERATURE REVIEW ON HOW TOD IS CONNECTED TO LED

2.1. Introduction

The relationship between local economies and infrastructure interventions has been a key area of research in urban development globally, but more particularly in deprived areas. As a consequence, this study builds on the insights from such enquiries. Therefore, this section of the research surveys scholarly work and policy written on LED and TOD with a specific focus on BRT systems in Johannesburg. This is done to analyse how these concepts relate to one another and how their theoretical foundations influence urban planning policies towards building a theoretical framework for the research. It also provides brief backgrounds, summaries and critical assessments of each stream of theory and acts as an analytical synthesis of concepts that guided the study. Moreover, it identifies whether or not there are gaps in preceding research and provide a contextual framework that in turn guides the work towards unpacking how public policies are being applied in South Africa, particularly in Johannesburg.

2.2. Discussion of Key Concepts, Projects and Policies

There is already a comprehensive academic literature that relates to the key concepts and policies that are central to this study. In order to avoid misunderstandings and effectively facilitate the use of particular concepts for the purposes of this research, I will begin by providing brief definitions.

2.2.1. A Discourse of Local Economic Development

LED is defined as an ongoing participatory process by which public and private sector partners cooperatively establish a social discourse in order to build up the economic capability of localities to create a platform for sustainable economic growth and improved living standards (World Bank, 2011). LED was first theorised in the 1970s when the idea of global economy was still gaining its universal popularity (Bartik, 1991). This theoretical basis was as a response to the economic crises of the 1960s when most city centres started to change their nature as they made way for occupation by the low-income populations. During this period, cities saw changes in spatial economy and transformation of their demographics. These social and economic crises widened income inequalities in most countries around the world (Bartik, 1991; UNDP, 2011). This weakened sources and patterns of labour. It was then when governors and mayors assumed responsibility for economic development (Birkhölzer, 2005). As a result, national and subnational governments provided financial assistance and business management training to small businesses and emerging entrepreneurs. These strategies were devised to provide

subsidies to start-up firms, enhance regional planning, establish business incubators and cluster local small business in general as a way of enabling local communities, including the inner-city occupants, to compete in a global economy (Leigh & Blakely, 2013).

LED is strongly influenced by addressing the problems of increasing unemployment, poverty and economic decline that has affected not only developing countries, but also highly industrialised states in North America, Europe and Asia (Richards & Stetten, 2002; Rodriguez-Pose & Tijmstra, 2005). The recognition of LED strategies increased with growing numbers of socially and economically excluded people, especially in developing countries where processes of economic transformation intensified social and economic imbalances (Birkhölzer, 2005). As a result, the informal economy at the municipal level started expanding. Furthermore, with the aim of responding to the rising needs for decent employment, bottom-up approaches to economic development were put in place. LED integrates the functions of both the private sector and local government such as real estate development and the provision infrastructure geared towards achieving eco-friendly urban development (Beyer et al, 2003). Thus, the main objectives of LED initiatives and interventions include: encouraging the establishment of SMMEs; creating sustainable employment prospects; attracting private investments and improving or investing in hard and soft infrastructure (Rodriguez-Pose & Tijmstra, 2005). All these aspects are intended at improving the image and the business environment of a certain locality for both its local and global economic competitiveness.

According Rogerson (2004), the notion of LED is closely associated with the decentralisation of governance and administration. The process of decentralisation in both industrialised and emerging nations is professed as an operative mechanism facilitating the transference of the far-reaching duties and accountabilities from national to subnational government officials as a means of embracing sound local governance and access to basic services, as well as ensuring a broader participation of communities (Richards & Stetten, 2002). The devolution of administrative authority also engenders progressive regional economic projections through the reflection of local needs (Rogerson, 2004). UNDP (2011) affirms that the public sector helps to facilitate and coordinate LED projects through the development of basic infrastructure that stimulate economic development enterprises that are carried out by private companies and community-led non-profit organisations (Rodriguez-Pose & Tijmstra, 2005). Beyer et al (2003) argues that these stakeholders willingly work together to reinforce the local business competitiveness; puzzle out market-related insolvencies and get rid of administrative stumbling blocks restraining the growth of local economy. Thus, LED should not only be perceived as a response to social

and economic challenges such as unemployment, abject poverty and urban decay, but as a stimulant of local economic accomplishments that will feasibly result in a resilient economic growth in the long run. Moreover, LED enterprises holistically nurture the socioeconomic security of communities, more particularly the underprivileged and marginalised. Rodriguez-Pose & Tijmstra (2005) maintain that those very representatives also strive to empower the general public to efficiently use the existing business initiatives to stabilise their local economies and generate municipal tariffs for funding urban services.

2.2.2. The Literature on Transit Oriented Development

TOD is explained as a development strategy that encourages the establishment of mixed use and high-density milieus around transit nodes or corridors (Carlton, 2009). The activities associated with TODs usually include housing, workplaces, shops, social services and open spaces. The theory of TOD highlights that public transport systems and geographic contexts within which they navigate are entities that are mutually dependent for producing sustainable urban forms (Nikolic et al, 2009).

The notion of TOD was first conceptualised and developed in the United States of America in the late 1980s by Peter Calthorpe (Carlton, 2009). However, as a fixture of modernist planning and urban design, TOD became more popular in the early 1990s when Calthorpe (1993) published *The New American Metropolis*. Beyond its definition of built form, TOD was developed to address myriad social and environmental issues. As a guide to sustainable communities, it is also considered an easily comprehensible reaction to current urban conditions such as: climate change, rising fuel prices and rapid urbanisation (Belzer et al, 2002). As a result:

> "…transit-oriented developments have the potential to provide residents with improved quality of life and reduced household transportation expense while providing the region with stable mixed-income neighbourhoods that reduce environmental impacts and provide real alternatives to traffic congestion" (Carlton, 2009: 1).

TOD promotes mixed-use, compact development approaches that meritoriously integrate residential precincts with commercial hubs and other urban facilities as an avenue to improving access to public transportation networks and other mobility preferences such as walking and cycling (Cervero et al, 2002). It is a key element to creating sustainable, liveable urban communities. It is believed to generate employment prospects for people of different ethnic backgrounds and economic statuses (Carlton, 2009). According to Cervero et al (2002), other key mechanisms of TOD include: providing a variety of housing typologies supportive to transit systems; conserving sensitive habitats for wildlife and

developing more resilient public open spaces that in turn enhance neighbourhood activity. Thus, cities and regions are pursuing TOD strategies as a way to achieve an increased economic competitiveness through improved quality of life. There are numerous benefits associated with successful TOD initiatives. These include: a reduced household expenditure on transportation costs; increased transit ridership; improved access to economic opportunities; walkable environments; increased or sustained property values; reduced dependence on private vehicles and lowered regional traffic congestion and greenhouse gas emissions (Belzer et al, 2002; Carlton, 2009).

2.2.3. The Relationship between TOD and LED

Extensive public transport projects are positively influential in shaping urban communities because they have the physical capability to weave social, economic and environmental systems together by linking various enclaves into vast urbanised and robust regions (King & Zamorano, 2014). Well-connected urban districts increase access to diversified economic opportunities and encourage people to walk from one point to the other; thus increasing physical activity and healthy lifestyles for their inhabitants. In this manner, TOD stimulates LED programmes by encouraging the establishment of SMMEs and allowing them diverse economic activities in these enclaves (CoJ, 2015a). Thus, in Johannesburg TOD is seen as a form of LED. In that respect, SAG (2015) recommends that local municipalities develop sound and solid transport infrastructure. The provision of infrastructure remains a decisive development approach that drives resilient economic growth, reduces socio-economic inequalities and alleviates poverty (Greenwood & Holt, 2014). Put simply, the local government's endeavour is to make public transport an animating anchor of not just local, but also the national economy (GDP).

As cited before, LED is the process by which local government leadingly works with communities by ensuring that a built environment, among other things, is conducive to economic growth. In that way, municipalities devise and implement innovative strategies that help communities facilitate investment and business-enabling environments so as to improve employment initiatives and sources of incomes (Rogerson, 2004). Thus, LED and TOD projects, although not necessarily always the case, are designed to stimulate urban regeneration and economic growth without having to displace certain disadvantaged groups, but involve them in the policy adoption and development processes. The purpose of local government is to also set policies and regulate the performance of LED projects in order to enhance districts' competitiveness in the national and international contexts. Therefore, these endeavours are usually effective if they are in line with the subnational government policies and other developmental initiatives. Pacheco & Caccia (2015) explain that TOD is seen as an effective planning model primarily for

influencing the development of compact neighbourhoods with high population densities, a variety of land uses and functional public spaces. TOD's main objective is to manifest local economic development and sustainable urban mobility (Rogerson, 2004; Greenwood & Holt, 2014). Theoretically, compact development initiatives generate more accessible employment prospects that in turn generates other economic activities. The diversification of activities in these forms of developments encourages pedestrian traffic flows (Pacheco & Caccia, 2015). As a result of this intensity of space users, commercial activities are stimulated, so is the overall local economy.

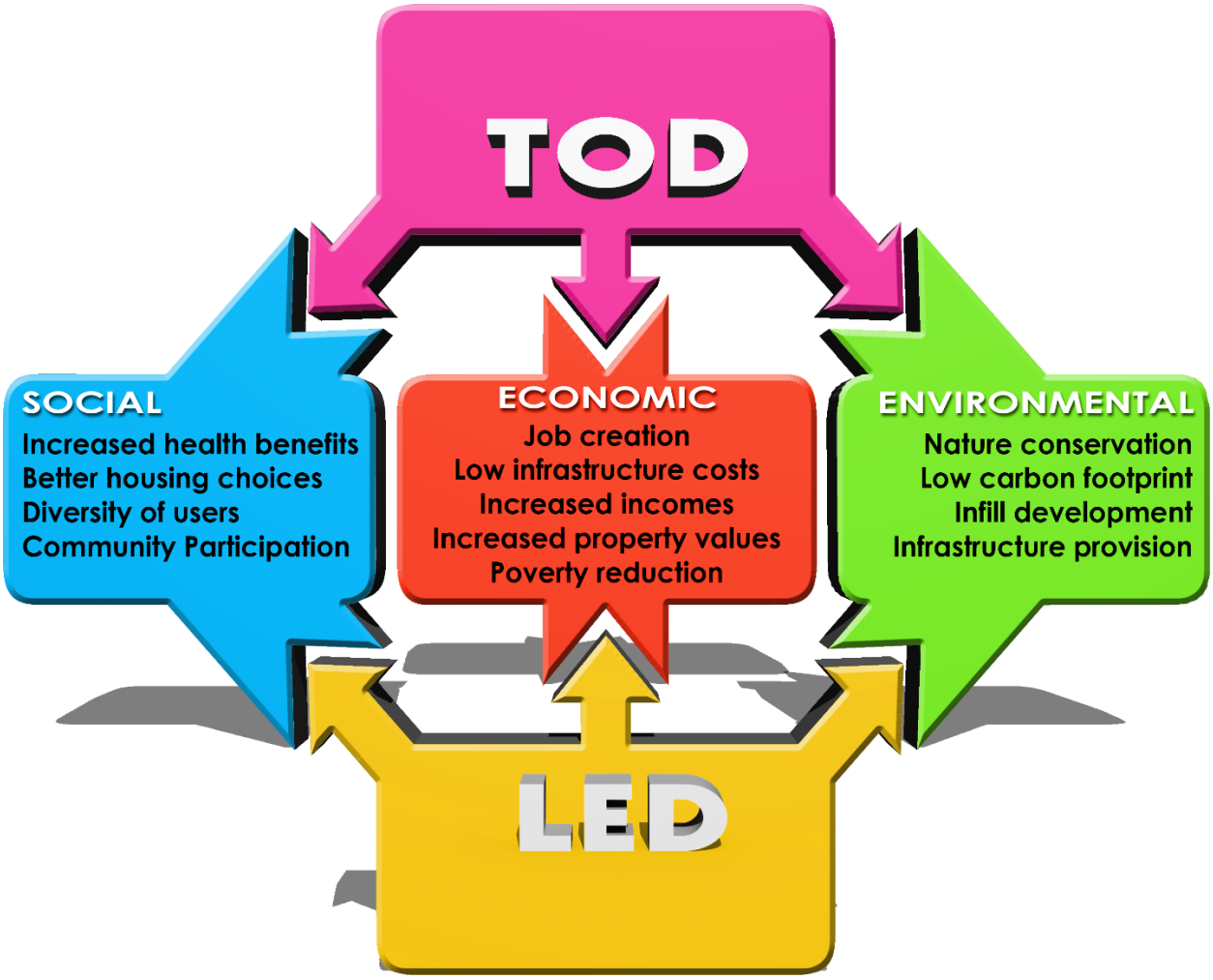


Figure 3: The relationship between LED and TOD and anticipated outcomes (Source: author, 2015).

Mixed-use developments enhance vital economic activities by providing the variety of goods and services. A well-executed TOD project facilitates or lays a strong foundation for LED activities. Put simply, TOD policies are usually presented as exceptional driving forces for economic growth (Belzer et al, 2011). CoJ (2015a) expects TOD to be a radical strategy that effectively addresses the major issues of

traffic congestions and air pollution facing Johannesburg. TOD is also designed to lower travel costs and times as a way of enhancing economic productivity and alleviating urban poverty. Therefore, the common objective for LED and TOD is to stimulate economic activities due to the fact that quality public transit facilities attract new users whilst reducing private vehicles dependency and transport costs. Furthermore, TOD prioritises non-motorised mobility in the view that it calls for local municipalities to provide pedestrian-friendly conditions such as cycling infrastructure and well-maintained sidewalks as a way to minimise car dependency (Beyer et al, 2003; Carlton, 2009). However, the blind spot in this literature is that in South Africa – as opposed to the northern hemisphere development outlook – the dominant form of commuting is still through private vehicles, more especially in the Gauteng city region (Wray & Gotz, 2014). This implies that getting people off their cars to alternative, optimal mode of commuting is what incisively makes the effective application of some TOD elements more challenging.

Another objective of TOD is the provision of high quality public transport. Efficient transit facilitates both density and economic agglomeration (CoJ, 2015a). However, Belzer et al (2011) assert that high density environments with the cluster of amplified economic activities unduly benefit from the presence of transit-oriented nodes and corridors. Evidently, the reported benefits are not only enjoyed by the transit-dependent consumers, but also those who live within the vicinity of those activities or development strips. When economic establishments are incorporated with residential developments, employers have a security or are more likely to attract and retain high quality workforce for employment opportunities that are just a walk away from their own back yards – there will be no need to travel elsewhere for the same opportunities. This suggests that cities with convenient and active transit corridors are likely to intensify labour productivity and profitability (Carlton, 2009). However, in the real life situation, people do not completely behave the way TOD policies assume they do since they choose where they would like to live or work for a variety of complex reasons. For instance, there are people who work in the Johannesburg metropolitan area, but chose to live in Pretoria or Ekurhuleni. Nonetheless, TOD guidelines evince that the greater influence on economic efficiency is enhanced by broader macroeconomic trends and supportive policies that support the provision of other basic urban amenities and infrastructure – as a way of stimulating distributional economic development (Belzer et al, 2011; Pacheco & Caccia, 2015). In many cities, the manifestation of sustainable transit serves as an underlying principle for allowing greater building height and intensity. The provision of sustainable urban transit in neighbourhoods such as Meadowlands attracts investments such as shopping centres and other associated commercial activities. As a result, people's expenditure on travelling costs is reduced. On the positive side, one can then see that TOD holds the potential to cut individual and local

government spending, whilst ensuring a better quality of life for all. Cervero et al (2002) also establishes a direct connection between TOD and LED principles as they are both aimed to improve living standards. In general terms, the basic relationship between TOD and economic development is that efficient public transport creates high accessibility to best locations for business.

2.2.4. The Analysis of Bus Rapid Transit Systems

BRT systems are defined as high quality, convenient and viable modes of transport that are customer-oriented (Wright, 2001). The most successful and oldest BRT networks are in Curitiba (Brazil) and Bogota (Colombia) (Wright, 2002, Jenkins, 2012). According to Wright (2001), the genesis of BRT can be traced back to Latin American cities administrators and urban planners in search of a cost-effective response to the predicament of metropolitan transport. To illustrate, in the early 1970s Latin American cities experienced rapid population growth that exerted pressure on public transit service provision (Wright, 2002). The problems of increasing population growth and limited fiscal resources challenged Latin American urban planners to propose new public transport systems. One such response was the BRT system. The central objective was to minimise the dependence on private vehicles. In other cities around the world, BRT systems are contextually termed TransMilenio, Metroplús, TransJakarta and the Express! (Wright, 2001). Notably, the BRT buses are usually accredited with minimising carbon emission levels because they run on low-sulphur diesel, known to be the more refined fuel (Wood, 2014).

The BRT systems function in a comparatively similar way to rail networks – with stations – yet do not require the same capital layout, as existing roads are used. According to Crawford (2012), rolling out BRT systems is less costly than the provision of metrorail services (rail-based transport). However, a cost and service comparison between BRT and rail systems is an apple-to-orange evaluation because they have varying carrying capacities, contrasting designs and impacts on urban development (see Table 1). Cervero (2013) further illustrates how BRTs are an economical alternative to metrorail systems by most accounts by arguing that their use of existing roadways minimises the operational costs of BRT in relation to rail systems despite their lower passenger carrying capacities. Despite the fact that urban rail networks is associated with enhanced connectivity and stronger city shaping influences, a single metrorail system costs 10 times more than a high quality BRT project (Wright & Hook, 2007). This implies that the provision of BRT facilities requires considerably less capital costs than rail. Other factors favouring BRT services to rail investments is that they are delivered in a much shorter period than constructing urban rail networks. Hence, the BRT projects are becoming the preferred urban transport investments in both advanced and rapidly developing economies.

Table 1: BRT and urban rail investments comparison (Source: author's construction from Cervero, 2013).

TRANSIT OPTION	BRT SYSTEM	URBAN RAIL SYSTEM	
		LIGHT RAIL	METRORAIL
RIGHT OF WAY	MIXED: SHARED (AT-GRADE); DEDICATED & EXCLUSIVE BUSWAYS	EXCLUSIVE (ELEVATED OR BARRIERS) OR SHARED (AT-GRADE)	EXCLUSIVE (GRADE-SEPARATED)
RUNNING WAYS	PAVEMENT (ROADWAYS)	STEEL TRACKS	STEEL TRACKS
VEHICLE PROPULSION	INTERNAL COMBUSTION ENGINE	ELECTRIC (OVERHEAD WIRES)	ELECTRIC (HIGH-VOLTAGE THIRD RAIL)
VEHICLE CONTROL	OPERATOR / VISUAL	AUTOMATED / SIGN CONTROL	AUTOMATED / SIGN CONTROL
CONSTRUCTION DURATION	1 - 2 YEARS	2 - 3 YEARS	4 - 10 YEARS
MAXIMUM CAPACITY PASSENGERS/VEHICLE UNIT	160 - 270	170 - 280	240 - 320
MAXIMUM CAPACITY PASSENGERS/COUPLED UNIT	160 - 270	500 - 900	1 000 - 2 400
LINE CAPACITY PASSENGERS/DIRECTION/HOUR	5 000 - 45 000	12 000 - 75 000	40 000 - 72 000
MINIMUM HEADWAY SECONDS	12 - 30	75 - 150	120 - 150
MAXIMUM SPEED KILOMETRE/HOUR	60 - 70	60 - 80	70 - 100
AVERAGE CAPITAL COST US$ 2000/KILOMETRE	8.4	21.4	104.5
AVERAGE OPERATING COST US$ 2000/VEHICLE REVENUE KILOMETRE	2.94	7.58	5.30

In South Africa, the planning and implementation of BRTs gained its momentum in August 2006 when a renowned specialist on mass rapid transit, Lloyd Wright, presented the mechanisms and successes of BRT infrastructure, with an emphasis on Bogotá's TransMilenio system – the most influential BRT model – at the Southern African Transport Conference (SATC) workshops (Wood, 2014). In 2007 and 2008

respectively, inspired cities expressed their interest by sending transport-related representatives and key stakeholders to Curitiba, Bogotá and Guayaquil to learn more about BRT construction and operations, as well as more effective ways of incorporating these systems with non-motorised transport options. These study tours happened to be fundamental in the adoption practices of BRT across South African cities as they exemplified the paramount features each city wished to execute in improving the quality of public transport. Currently, there are 13 South African municipalities that adopted BRT policies and strategies in order to enhance or integrate their public transport alternatives (SAG, 2015). Johannesburg, Ekurhuleni, Cape Town, Tshwane, George, Nelson Mandela Bay, eThekwini, Buffalo City, Mbombela, Mangaung, Msunduzi, Rustenburg and Polokwane are the cities that are determined to elevate public transport experiences within their jurisdictions (Wood, 2014; SAG, 2015). However, each city has its innovative strategies and designs for implementing and running its distinctive integrated public transport system (IPTS). The Rea Vaya (2009), MyCiTi (2011), Libhongolethu (2012), A Re Yeng (2014) and Go George (2014) systems currently stand as the leading BRT projects in operation (Wood, 2014).

2.2.5. Rea Vaya System, Corridors of Freedom and the World-class Status

The City of Johannesburg, as one of the major economic hubs in Africa, is experiencing rapid urbanisation. According to Statistics SA (2011), there were nearly 4.5 million people living in the Johannesburg metropolitan area. Most of those people were daily commuting into the inner city areas to access their employment places and associated economic prospects by means of public transport (buses and taxis) and private vehicles. Moreover, CoJ (2015b) records that there were almost 2 million recorded vehicles on the road before the adoption of efficient public transport plans. Therefore, in strategically responding to the issues of rapid growth, traffic congestions, carbon emissions and the commitment to remedy the spatial and economic imbalances of the apartheid system, the Johannesburg City Council approved its Rea Vaya BRT system framework in November 2006 (Ndebele & Ogra, 2014; Wood, 2014). Rea Vaya is a Sotho phrase denoting “we are going”. The City of Johannesburg’s milestone was thus to provide an efficient mass transit network premised to move people around the metropolis.

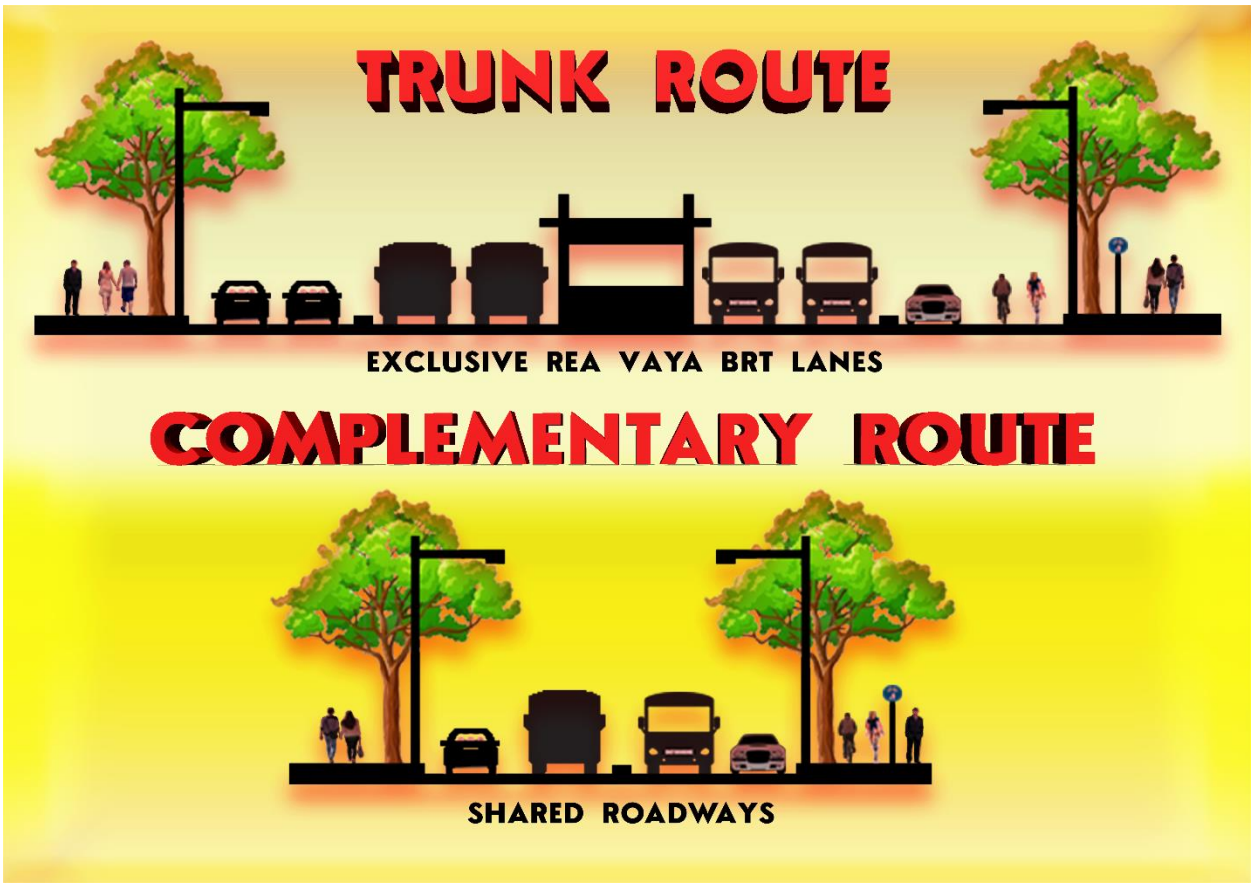


Figure 4: Typical BRT's trunk and complementary routes in Johannesburg (Source: author, 2015).

Rea Vaya's construction phase commenced in October 2007, and started operating in August 2009 (Wood, 2014). The Rea Vaya BRT system comprises three service routes. They are as follows: trunk routes (bus lanes only reserved for Rea Vaya buses), complementary roads (buses share the road reserves with other vehicles and collect passengers at specific, marked points) (see Figure 4) and feeder lines (connecting distant nodes with trunk routes) (Rea Vaya, 2015). In Cape Town, these Integrated Rapid Transit (IRT) services are supported by bicycle and pedestrian facilities – whereas the CoJ is still working towards realising that objective. Most Rea Vaya bus stations are placed roughly 500 metres apart, unlike the MyCiTi IRT terminals which are approximately 800 metres away from each other (Wood, 2014; Rea Vaya, 2015). The Rea Vaya project has been celebrated as the first full-feature BRT network in Africa because it prompted a new development paradigm in South African public transport (Wood, 2015). It was also the only South African BRT version operating in 2010 during the course of the FIFA World Cup. In addition to the aforementioned objectives, this mode of public transport is designed to generate sustainable employment opportunities and improve the quality of both built and natural environments, as well as reducing Johannesburg's carbon footprint (Wood, 2014; CoJ, 2015c). These

claims are also embedded in the Joburg 2040 Growth and Development Strategy (GDS, 2011). This GDS framework acts as a guideline that is intended to redevelop Johannesburg into a sustainable, "World-class African City". At this point in time, the City of Johannesburg basically aspires to be a world-renowned economic hub that has a major role to play in connecting other global centres specialising in corporate services. Thus, Johannesburg envisages itself as a city of global inspiration which has an impact on global economic and political affairs. However, for it to achieve these objectives, certain developmental facets have to be assessed to see if they are of a world-class status. Henceforth, the CoJ has been focusing on improving its transportation and freight movement systems such as functional highways and extensive mass transit networks that offer multiple modes of transport. For instance, the Gautrain services and the Rea Vaya BRT system are self-explanatory projects in that regard. However, to enrich the main discussion, the study focuses on the latter project.

As outlined on the Rea Vaya (2015) website, the system is a city wide project that is envisaged to enhance the public transport network – linking regular metropolitan buses, minibus taxis and rail systems in the long run. SAG (2015) reports that the Rea Vaya service currently provides transport more than 30 000 passengers on a daily basis. Based on the principles of TOD, the implementation of Corridors of Freedom (CoF) signifies that the CoJ set in motion the spatial reconfiguration strategies that are aimed at transforming the inherent settlement patterns of the apartheid regime that were mostly based on mono-functional developments (CoJ, 2015a; Rea Vaya, 2015). This strategy of Corridors of Freedom is designed to bring social and economic opportunities closer to places of residence whereby Johannesburg residents can opt for alternative means of transport (walking and cycling), except for heavily relying on private motorised access to opportunities.

The main target of Johannesburg's Corridors of Freedom is to link strategically-located mixed-use, compact development nodes comprising of variety of affordable housing options, commercial (offices and retail) developments, institutional and recreational activities with well-planned, viable transport networks for an integrated and sustainable metropolis (Pieterse, 2014). Thus, CoJ (2015c: 4) reports that "…a compact city is energy efficient, provides residents with greater access to services, promotes social cohesion and creates a vibrant urban environment". These Corridors of Freedom are also guided towards stimulating opportunities not only in the formal economy, but also for small and medium enterprise operators in the informal economy (CoJ, 2015c). This, among other factors, makes it apparent that TOD and LED are interconnected and should not be treated as stand-alone approaches. The physical

manifestation of this comprehensive plan is intended to reduce the apparent urban poverty or improve living standards for Johannesburg residents by redressing socio-economic inequalities that exist between the haves and have-nots. Corridors of Freedom are intended to stimulate "economic activities and create opportunities for emerging entrepreneurs" (CoJ, 2015c: 6). Some of the areas in which the Corridors of Freedom are to be or have been rolled-out include: CBD, Soweto, Sandton, Alexandra, Turffontein, Randburg, Diepsloot and Ivory Park. As further reported by CoJ (2015c), the key components of these Corridors are: mixed-use nodal developments, safe neighbourhoods, convenient transit nodes, a wide range of housing typologies that support the growing population and safer street environments with limited parking spaces to discourage the use of private transport. However, not only do these interventions improve public transport infrastructure, they also enhance the upgrading and development of other urban amenities – social and economic facilities.

2.3. Existing Empirical Research

There are a number of independent pieces of research examining the impacts of BRT Systems on development. This study hopes to compliment these. They include international and South African case studies, with notable studies outlined in the subsections below.

2.3.1. International Literature on BRT Systems

Presented as the most indisputable and positive environmental change in Bogota's urban setting, TransMilenio BRT networks are believed to have had a positive impact on economic productivity and land use changes. Comparatively, studies conducted by Rodriguez & Targa (2004) and Munoz-Raskin (2010) in Bogota confirmed that commercial properties in the proximity of BRT corridors are more cost-effective developments than residential ones. These studies also revealed that office parks along the TransMilenio busways thrived because their monthly rents were lower than those of residential properties occupying the same land parcels. Residential properties had a lower premium, presumably due to pollution effects, vibrations and unfavourable noise from vehicular traffic. Moreover, Rodriguez & Mojica (2008) stated that the reported mutual effects between land development and transport networks are influenced by other political and economic fundamentals of urban development promoting TOD strategies. These authors further mentioned that the formulation of regulatory frameworks improved local public institutions and transport projects that appraise viable public transit over private car infrastructure. A study done by Silva (2010) has shown that department stores benefited more from the operation of the TransMilenio bus system than the SMMEs. This was due to

the reason that the BRT, unlike ordinary buses that stop anywhere along transport corridors, has designated stations and terminals usually located approximately 600 metres apart. It is then significant to mention that high-level shopping centres deem BRT nodes as convenient locations for their establishments. Other findings from similar case studies showed that the urban poor benefited from the implementation of TransMilenio in terms of improved accessibility to services and economic opportunities (Crawford, 2012).

In Curitiba, economic gains are closely associated with the construction and operation of BRT systems and other supporting mass transit infrastructure in the sense that they can generate employment. Goodman et al (2007) in their *Curitiba Bus System is Model for Rapid Transit* study reported that the *Rede Integrada de Transporte* (RIT) created permanent and temporary jobs whereby people were absorbed by the formal sector. Similar to the case of Bogota, the success of the Curitiba's transit project was embedded in urban planning policies and programmes that discouraged auto-oriented centres in promotion of commercial developments along the BRT corridors (Goodman et al, 2007; Carrigan et al, 2013). The reputation of the RIT network influenced a modal change from private vehicles to BRT ridership. To illustrate, Goodman et al (2007) argued that more than 80 percent of travellers rely on bus services since they spend about 10 percent of their earnings on transport expenses.

Cervero & Kang (2011) examined the impacts of BRT on land development and economic values of properties in Seoul (South Korea). Their study revealed that BRT developments and expansions encouraged property holders to redevelop low-density residential areas into higher density developments. This is important for any BRT project. Thus, land price premiums of the properties in the proximity of bus stations improved. This in turn shows a relationship between BRT improvements and property values. Furthermore, the study concluded that the BRT systems are a more sustainable option than urban rail investment. Unlike the rail networks, BRT systems provide direct and faster transit services because their graded routes are designed to accommodate multiple bus lines to and from various destinations. Yet, Litman (2013) concluded that one cannot simply dismiss or overlook one mobility network for the merits of the other for each option is generally considered suitable depending on the urban conditions it navigates through. In addition, Nelson et al (2013) analysed the relationship between BRT and economic growth in Eugene-Springfield (Oregon, United States). The authors argued that although BRT is comparatively recent in the United States, it has enhanced economic opportunities of the firms located along the BRT corridors. Their findings indicated that there was an overall

improvement in metropolitan economic performance. This was the contribution of growing employment prospects around the BRT facilities.

2.3.2. South African Literature

Maunganidze (2011) studied how the BRT can be utilised in improving the public transport accessibility levels by the urban poor in Cape Town. Maunganidze's (2011) study showed that the level of public transport service provision was inadequate and ineffective in meeting user needs in Cape Town, more especially the poor commuters. The main discoveries were that the IRT network was not evidently enhancing the well-being of the underprivileged urban communities in the sense that it was too expensive to them. Moreover, it is worth mentioning that a similar conclusion reached by Goodman et al (2007) when exploring the economic benefits associated with Curitiba's BRT system was also articulated by McCaul (2012) when studying the impacts of the Rea Vaya project in Johannesburg. McCaul (2012) argues that more than 15 000 jobs were created during the construction of Rea Vaya's Phase 1A. Moreover, during the operation of the cited phase, formal employment arrangements were made where employees operate as bus drivers, ambassadors, administration staff, cashiers, security personnel and cleaners.

Furthermore, a study done by Vaz & Venter (2012) in Johannesburg advocated that the major benefit of the BRT was not directly linked to employment opportunities, but an improved accessibility to a variety of activities. They also found that people who benefitted the most were medium-income earners, rather than the low-income commuters. At the same time, their findings showed that the Rea Vaya BRT system largely contributed to community satisfaction. Thus, it improves social cohesion and attracts further investment. Taking a different angle in analysing public transport, Bickford has recently conducted a study in Diepkloof (Soweto, Johannesburg) evaluating the impacts of the BRT at the neighbourhood level. Bickford's (2015) research points out that the BRT has positive impacts on travel and lifestyle to those who use the system. Moreover, there was a clear indication that some people prefer the Rea Vaya systems over minibus taxis. However, there was no clear sign that the BRT investment has encouraged businesses development in the close vicinity of the station analysed. The findings of Bickford's study were that the shopping complex in Diepkloof seemed to have had a more conspicuous impact on residents than the BRT investment.

2.4. Research Position in Relation to Existing Work

To date, there has been limited research assessing whether public transport investments such as Johannesburg's Rea Vaya BRT are achieving the envisioned policy objectives, more especially those related to economic development. The reason behind this scenario might be that the CoJ's Rea Vaya BRT network started operating fairly recently when compared to other public transport systems implemented before 2009. As a result, it should be acknowledged that the research might not be able to fully assess the impacts of the transit network that has been running for six years. However, there is a growing cognitive content and physical manifestation of the impacts of Rea Vaya, which this study intends to contribute towards.

The uncompromising application of apartheid planning policies has largely caused a significant hindrance to social and economic progress to those who stayed in the townships due to the fact that commercial activities were limited (Harrison et al, 1997; Bond, 1999). Apartheid planners designed townships as dormitory towns and pools of labour for white areas (Todes, 2000). The apartheid government wanted African people to work, shop and, in doing so, pay taxes in white areas, but live in townships. Thus, apartheid was not merely about racial segregation, but racially-based economic exploitation. Clearly, this led to the underdevelopment of black African communities. This is most evident when one considers the socio-economic ills in the old township areas which the democratic government has been struggling to address (Bond, 1999; NDP, 2011). However, there is growing economic activity in Soweto (Bickford, 2015); and thus this work seeks to investigate whether or not this growth is linked to the BRT.

2.5. Conceptual Framework

Transit Oriented Development initiatives seek to stimulate inclusive economic growth and enhance social development. This is done through enhancing accessibility to economic opportunities, resources and social amenities that support the well-being of urban communities. Thus, in South Africa urban transport and LED policies are geared towards reducing poverty and improving standards of living through local infrastructure investment and public transport interventions in order to contribute to economic growth. In this context, the study aims to unpack the contribution of rapid transit systems to addressing economic development at the subnational sphere of government in Meadowlands, Soweto. The analytical framework of this study focuses on understanding the impact of such interventions in addressing challenges of previously disadvantaged communities in South Africa. Thus, this study serves

as a groundwork for further research that will be aimed at analysing the relationship between LED and TOD. In examining the impacts of urban public transport systems up to the present time, the empirical research that has been conducted in South Africa has merely shown a linkage between an enhanced urban mobility and LED initiatives. Although there are some negative perceptions associated with the BRT, there is a lot to offer if it were to be implemented to facilitate development in a holistic, inclusive manner. Nonetheless, this work remains significant in establishing the nexus between public transport interventions such as the BRT systems and their impacts on localities such as Meadowlands.



Chapter Three

3 – CONTEXTUALISING MEADOWLANDS

3.1. Introduction

This chapter seeks to provide an overview of Meadowlands by unpacking and discussing how the existing environmental features, demographic profile, economic factors and social institutions have an influence on TOD and LED principles and initiatives. The first section gives a brief background to the study area as a way of providing a sense of location of where and what Meadowlands is comprised of. As the complementary parts of the whole, the sections that come after the social make up of Meadowlands are aimed at unpacking the relationship between current realities and applications, as well as the outcomes, of the main strategies and projects the City of Johannesburg has been implementing in this geographical region. In summing up the chapter, various aspects of development policies and place-based interventions – such as the Rea Vaya system and Orlando Ekhaya project – enhance and equalise economic prospects for different ethnic groups that exist in this area as a way to address the irregularities of the past will be evaluated.

3.2. Background to the Study Area

The suburb of Meadowlands, as one of the sprawling townships of Soweto, is situated to the south west of the Johannesburg's central business district (Bonner & Segal, 1998; CoJ, 2015d). It was established in the 1950s during the apartheid era for black residents evicted from Sophiatown. This was to make way for a white-only residential area, Triomf, now renamed Sophiatown once again (Beall et al, 2003). Meadowlands is known to locals as "Ndofaya" (CoJ, 2015d). As per Hurst's (2009) arguments, Ndofaya refers to an Afrikaans-based colloquial dialect – also known as *Tsotsitaal* – used by young African men who were born and raised in Meadowlands. They prided themselves on their urban lifestyle as opposed to those who used Zulu-based jargon due to their rurality.

Townships surrounding Meadowlands include: Dobsonville, Bram Fischerville, Orlando West and Mofolo (see Figure 6). Meadowlands is just a few kilometres away from the recently revitalised scenic tourism node – the Vilakazi Street precinct that is made vibrant by the two house museums of the late president, Nelson Mandela, and the archbishop, Desmond Tutu, as well as the Hector Pieterson Memorial and Museum – in Orlando West (Nieftagodien & Gaule, 2012). The township of Meadowlands falls under the administrative jurisdiction of Region D (CoJ, 2015e). It is now an integral district of the CoJ metropolitan area.

3.3. Social Dynamics

In 2011, there were about 122 595 people living in Meadowlands alone (see Appendix F) (Stats SA, 2011). This means that about 10 percent of Soweto residents live in this area. The population in the confines of this area has been growing at an alarming rate. To illustrate, this, according to the 2011 Census there were more than 33 000 households – 4000 more households from the 2001's approximate of 29 000 – residing in this area (see Appendix H). Apart from natural expansion, this growth is exacerbated by Johannesburg's rapid urbanisation trend, whereby people from rural areas and neighbouring countries migrate into the metropolis in search for better social and economic opportunities. Since property values are steeper in city centres, township areas happen to be places within which these people could afford to live. This is the situation in Meadowlands as well. It is also worth stating that large households (more than 4 people) are likely to split where, in most instances, young educated individuals choose to relocate to newly built houses in the area or elsewhere. On the other hand, the construction of backyard rooms and shacks has become a widespread phenomenon in South Africa's township areas, not just in Meadowlands (Crankshaw et al, 2000). On that point, property owners get to generate an income from leasing out those backyard structures – more especially to migrants and immigrants. This is usually the case when those who are housed in these forms of structures are not closely related to the main household on the property.

The 2011 Census, which still uses the apartheid era population group categories, correspondingly indicated that Meadowlands is predominantly inhabited by Africans (99.5%), followed by Coloured (0.28%), unspecified racial group (0.13%), Indian or Asian (0.07%) and White (0.06%) populaces respectively (see Appendix E). Although there might be other imperceptible aspects, these figures enable one to conclude that people who own properties, run or work in big chain stores and SMMEs in Meadowlands are mainly Africans. It is also worth stating that most residents (65.4%) in this neighbourhood live in free-standing houses and economically, they can be categorised as the working class (see Appendices G and H). These are some of the many factors pushing them to generate an extra income through rental collections.

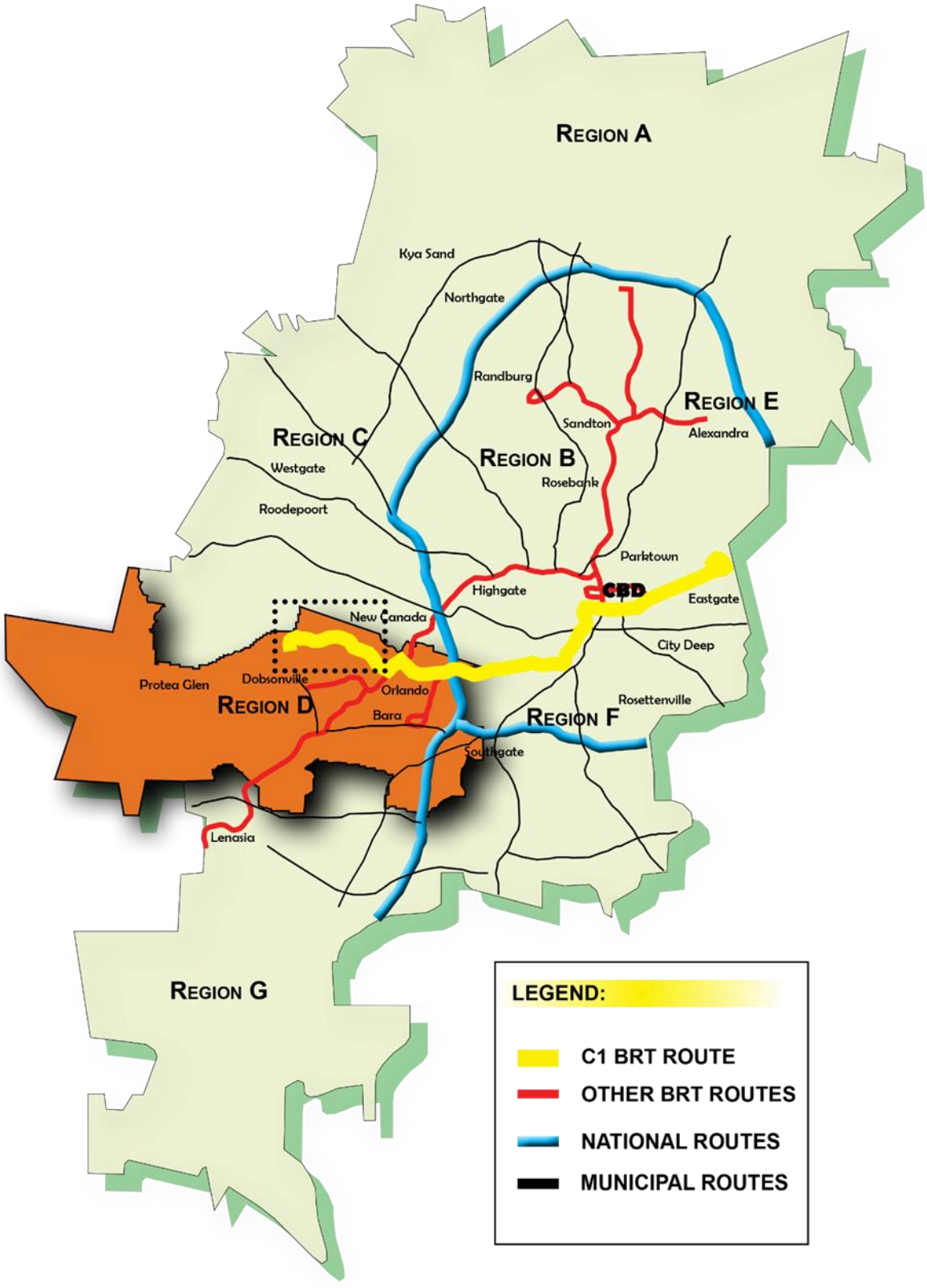


Figure 5: Locating Soweto in the context of the CoJ Metropolitan Municipality (Source: author, 2015).

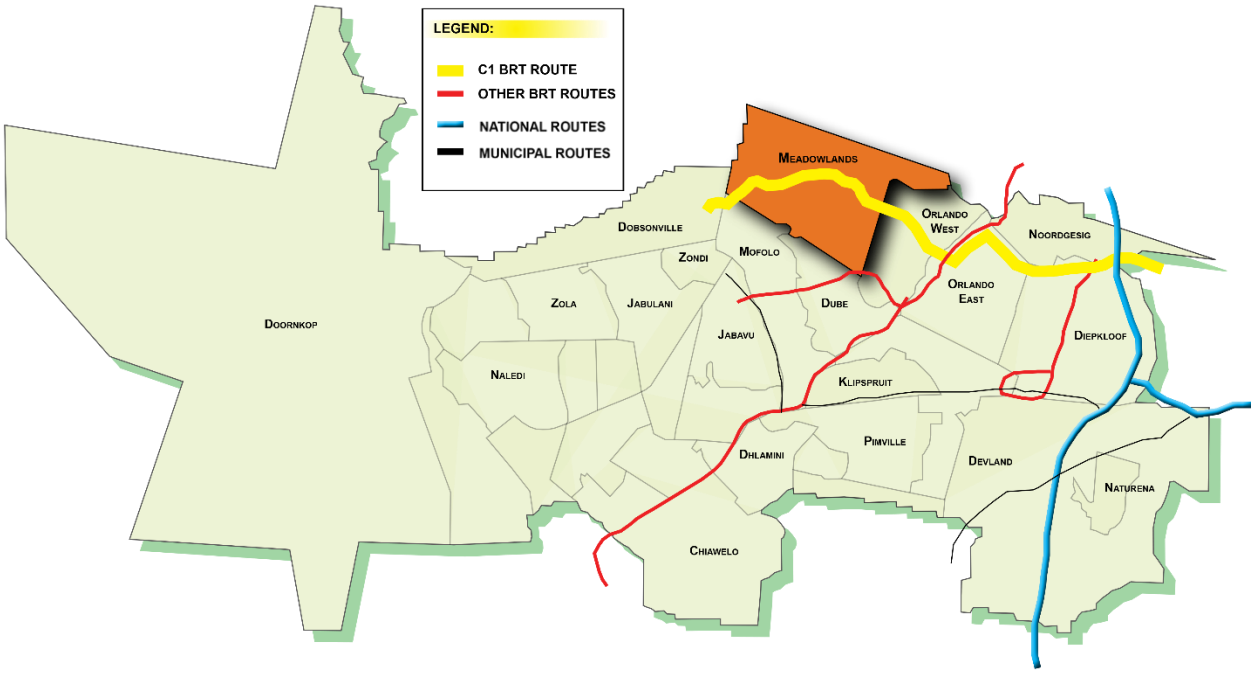


Figure 6: The location of Meadowlands in the context of Soweto (Source: author, 2015).

3.4. Environmental Features

3.4.1. Home Renovations and TOD Initiatives

The landscape of Meadowlands is still dominated by the "matchbox" houses that were built by the apartheid government (Beall et al, 2003). Originally, this type of housing resembled the shape of matchboxes and were divided into four rooms. The withdrawal from providing adequate housing for the Meadowlands' communities by the then local government has fuelled the proliferation of backyard dwellings – rooms and shacks. Although there are backyard rooms and shacks, as indicated by Gasennelwe (2011), Meadowlands is one of the few residential communities in Soweto that does not comprise of informal settlements in its landscape. According to Nieftagodien & Gaule (2012), over the past twenty years, a huge amount of Johannesburg's capital has gone into developing Soweto and incorporating it into the City. This form of investment is meant to refurbish the neglected landscapes of townships in Soweto during apartheid. With the recently built houses or apartments in these townships, one can argue that Soweto's residential property market is now thriving (Gasennelwe, 2011). In support of this statement, one can notice that many of those who are still living in matchbox-like houses have recently put much effort into making them more comfortable and suitable for human habitation.

Furthermore, as a response to the apartheid spatial planning, the City of Johannesburg, together with the Johannesburg Housing Company (JHC), is busy transforming hostels that were built to house male migrant workforces from the rural hinterlands and the neighbouring states during apartheid into comfortable family units – not only in Meadowlands, but also hostels elsewhere in Soweto are receiving this intervention (Nieftagodien & Gaule, 2012; CoJ, 2015a). This includes those in Diepkloof, Jabulani and Dube. Although not entirely meant for hostel upgrading in its scope, one such development programme is the Orlando Ekhaya housing project intended to diversify land uses in the Greater Soweto area by bringing in retail, commercial and recreational facilities.

One can also glimpse the high-security mansions in affluent parts of Meadowlands and the surrounding townships such as Orlando West and Dobsonville. These affluent parts of Soweto are habitations of the emerging black middle class (Gasennelwe, 2011; Bickford, 2015). The rows of matchbox houses abutting these luxurious mansions signify that Meadowlands or Soweto at large, is a place of counterpoints.



Figure 7: Recently built houses in Meadowlands (Source: author, 2015).

This also shows that the provision of wide-ranging housing options, viable transport system and picturesque commercial centres tend to retain Soweto's "Black Diamonds" or emerging middle class residents from relocating to affluent suburbs (Puhl, 2009; Dűrr, 2013). They are likely to operate home-based businesses or spend their revenues in the neighbourhood and in that way boost the local economy. Dűrr (2013) discusses how the rising African middle class community has been considered as the engine of not only Soweto's economy, but South Africa in its entirety. Their strong purchasing power and tax contributions are considered essential in enhancing the local economy.

3.4.2. The Improvements of the Public Transport Infrastructure

Since Meadowlands, or Soweto at large, was historically not allowed to develop employment centres or economic hubs within its precincts, practically most of its residents are commuters to other parts of the City (Beall et al, 2003). As an endeavour in redressing the spatial disparities instigated by apartheid spatial planning, the City of Johannesburg decided to implement the Rea Vaya BRT project in Soweto (CoJ, 2015a; Rea Vaya, 2015). To begin with, this was done to provide Soweto residents who were forced to live far from their workplaces with an improved transport system. According to the Rea Vaya (2015) reports and SAG (2015), the entire BRT network now provides transportation for more than 30 000 commuters on a daily basis. The transport modes currently operating in Meadowlands include: private vehicles, minibus taxis, commuter trains (Metrorail), buses (Putco and Metro) and the recently introduced Rea Vaya BRT system (Vaz & Venter, 2012). Although there is this diversified transport network, Bickford (2015) found that commuting in Diepkloof still largely done using taxis and trains; however, this study discovered that people are now starting to switch modes of transport from taxis to BRT.

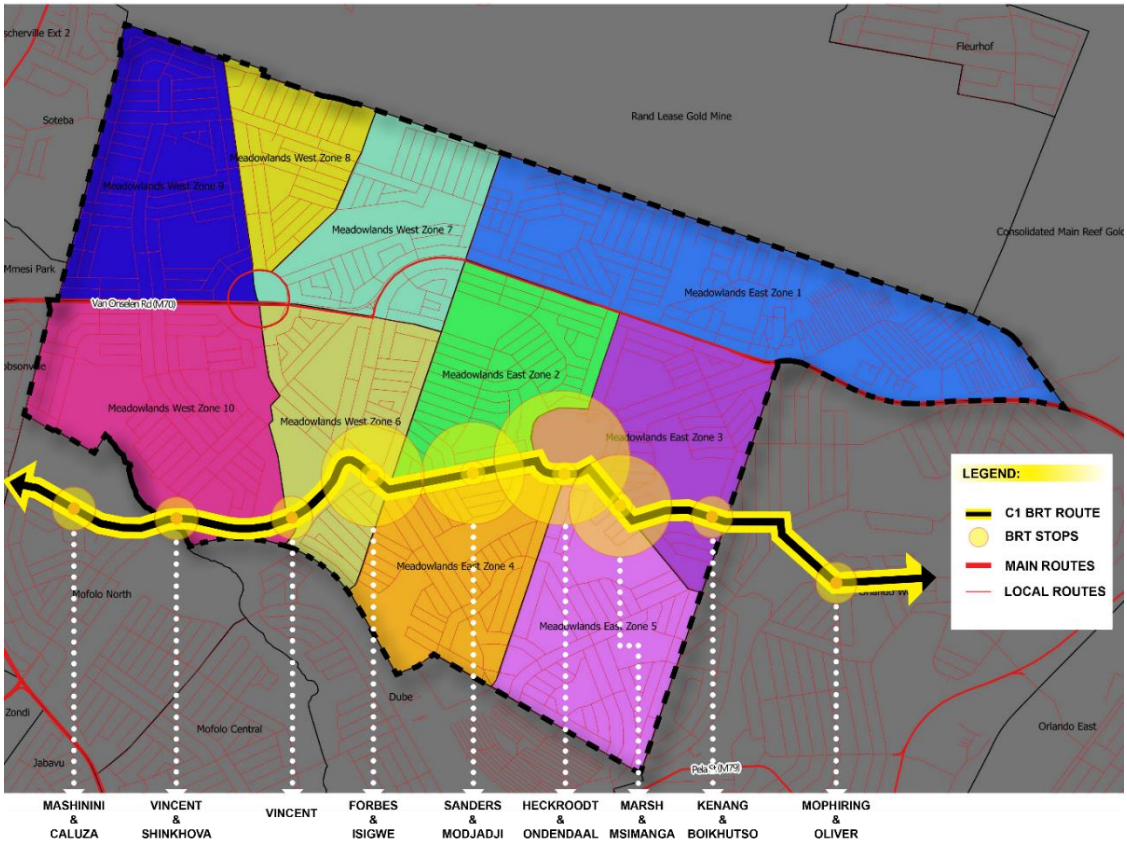


Figure 8: Locating the BRT's Complementary route (C1 and C6) in the context of Meadowlands. The four large circles depict the BRT stops around which I conducted my fieldwork (Source: author, 2015).

Although Meadowlands alone comprises of ten zones, the currently operating BRT route only runs through six of them (see Figure 8) – precisely; Zone 10, Zone 6, Zone 4, Zone 2, Zone 5 and Zone 3. The other zones that are further afield from this BRT spine still rely on private vehicles, minibus taxis and Putco bus services for their daily trips to and from Meadowlands (CoJ, 2015a). Unlike the main trunk line (T1: Thokoza Park to Ellis Park) and feeder routes (F1: Naledi to Thokoza Park), the one passing through Meadowlands is classified as the complementary route (Rea Vaya, 2015). This landscaped route serves the C1 (Dobsonville to Ellis Park East) and C6 buses (complementing the Thokoza Park-Parktown trunk route, T3). From a design point of view, the complementary route operating in Meadowlands is not wide enough to accommodate full-BRT stations; hence the City of Johannesburg resorted to building bus stops.

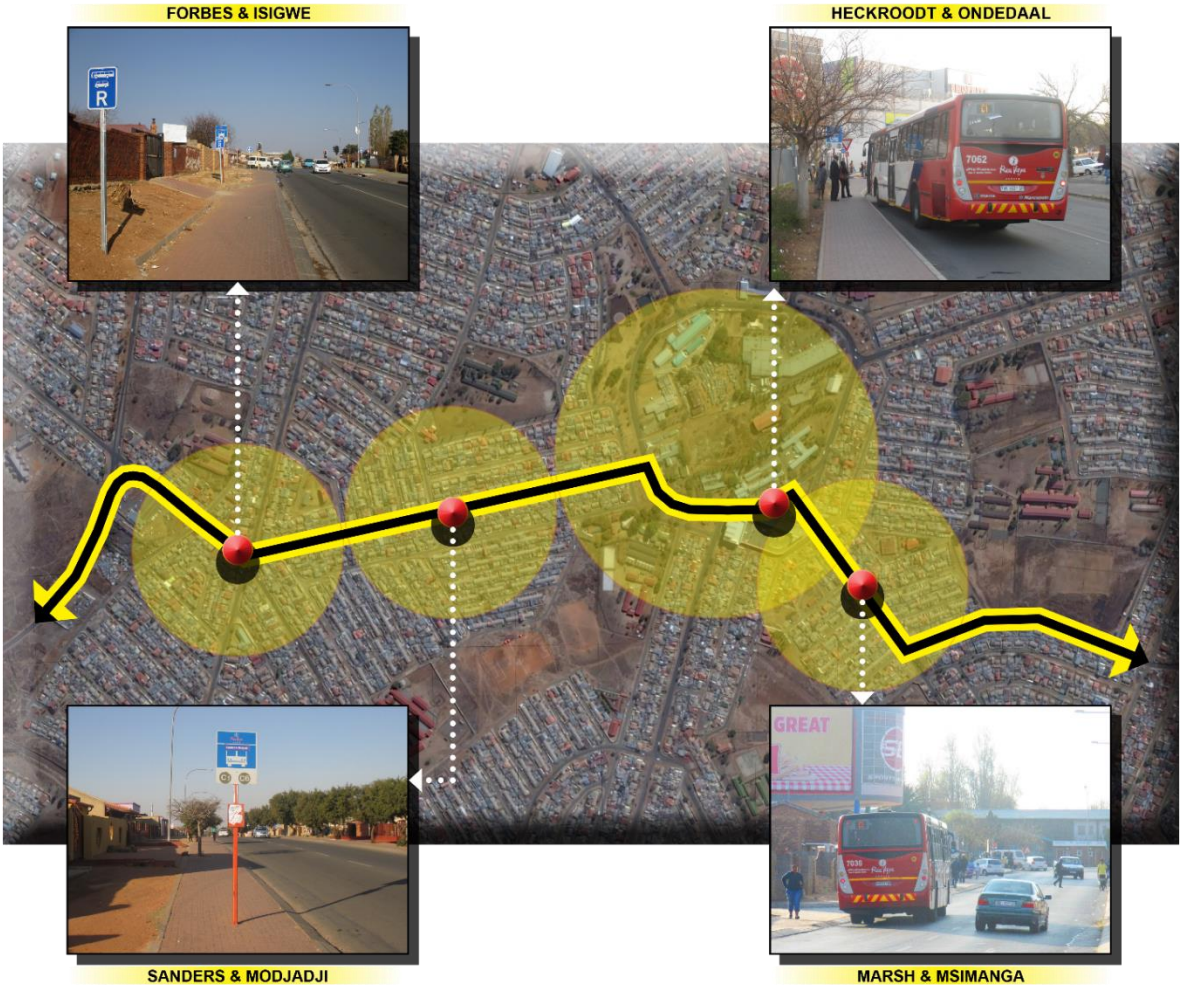


Figure 9: The four BRT stops examined – as the study area (Source: author, 2015).

Although there are seven BRT stops that are placed at different intervals in Meadowlands, this study examines only four of them: *Forbes & Isigwe*, *Sanders & Modjadji*, *Heckroodt & Ondendaal*, as well as the *Marsh & Msimanga* bus stops (see Figure 9). These bus stops are in the close proximity to the vibrant shopping centres and other social facilities. Hence, it can be concluded from the way in which the project has been carried out in Meadowlands, or across Soweto, that the CoJ's intention was to use the Rea Vaya BRT network as a catalyst for land and economic development.

3.5. Economic Realities

By providing very limited infrastructure, the apartheid state also brutally curtailed the economic development of Soweto. Hence, 12 years ago, Beall et al (2003) noted that the challenges that have been daunting the residents of Meadowlands or Soweto in much the same way as in the pre-1994 settings included high unemployment rates, inadequate housing, deprived infrastructure and overcrowding. Magubane et al (2004) also supported that Sowetans were firmly not permitted to establish their own business enterprises. These restrictions were enforced through the application of strictures such as the Natives Urban Areas Consolidation Act Number 25 of 1945. As outlined by Beall et al (2003), Sowetans were only allowed to peddle their goods around; vend dairy products and vegetables; operate general shops, restaurants and butcheries. Consequently, this saw informal trading develop into an illegal practice. It was only in 1977 that the constraints on economic activities were overturned (Bonner & Segal, 1998). Although it was celebrated that restrictions were finally lifted, the infrastructure deficit became a thorn in the flesh of Sowetans since it had a long-lasting disamenity impact on their existent businesses and livelihoods. In the midst of other businesses established thereafter, this shortfall has prompted the growth of the taxi industry. Vaz & Venter (2012) also indicated that the operation of taxis was also a response to Soweto's insufficient bus and rail transport systems.

In the late 1990s, a number of Meadowlands residents experienced an escalating occupational mobility due to an unremitting economic upswing (Beall et al, 2003). Even so, it was just a few individuals who benefited from this economic upsurge through property ownership, while many others were hit hard by rising unemployment levels and persistent structural poverty. Certainly, the contentious modifications in most socio-economic policies in 1994 imposed persistent economic hardships on a considerable number of inhabitants in Meadowlands (Bond & McInnes, 2007). For instance, according to the 1996 Census, a mere 49 percent of the economically active population was formally employed (Beall et al, 2003). The

remainder was either in elementary occupations or resorted to informal trading. This, according to the 2011 Census, seems to have been improving whereby more than 55 percent of those who are economically active were employed by that year (see Appendix G).

Even though certain parts of Soweto may still show destitute conditions, individual townships (Meadowlands, Jabulani and Orlando West) have a propensity for accommodating both the well-off and poorer residents. It is also believed that the poor residents are unable to meet the expense of certain basic utilities such as electricity (Bond & McInnes, 2007). This situation is thought to have been worsened by the privatisation policies that the national government has put in place (Fine, 1995; Chang, 2006). For example, as discussed by Taylor (2001), the introduction of the RDP and GEAR policies, as well as outsourcing basic services to private companies in the name of radical development and efficiency left many urban poor residents marginalised.

Most of the suburbs in Soweto, including Meadowlands, have come to be places of substantial urban development projects (Rea Vaya, 2015). This is attributable to the fact that apartheid planning did not do much in providing adequate infrastructure in these areas. As a result, the democratic government has committed itself to taking spearheaded moves in providing basic services to these townships (Bickford, 2015). Moreover, other than the established commercial activities such as street trading and spaza shops, residents of Meadowlands formed investment, grocery and burial schemes – locally referred to as “stokvels”. These group saving organisations are designed to help members with financial support as and when required. Here, the common ground is to create wealth and financial security for a brighter future. According to NASASA (2015), most of the registered stokvels have back accounts. On the positive side, these schemes enable members to regularly meet to socialise in special events such as birthday parties (CoJ, 2015d). To a great extent, the money they save helps them better themselves economically and socially – because most people in Meadowlands, supported by the statistics (see Appendix G), are unemployed or have not been absorbed by the formal economy (Scott & Barr, 2013). Put differently, these establishments are a form of LED initiatives.

The construction of shopping precincts such as the Meadow Point Complex and the recently opened Ndofaya Mall – developed by Ndofaya Properties Company during the period of September 2012 to July 2013 (Gothic Construction, n.d.) – symbolises the economic improvement in this area. However, there are also other older shopping centres that locals do visit. These include Dobsonville, Protea Gardens, Jabulani and Bara neighbourhood shopping malls, as well as Soweto’s regional shopping centre, Maponya Mall (Gasennelwe, 2011; CoJ, 2015e). Today, Soweto is considered a well-serviced economic

node characterised or inhabited by people of different social statuses. Despite the considerable levels of poverty and unemployment, Meadowlands is filled with a palpable energy and a buzz of economic activity whereby informal traders appear to take delight in plying their merchandises on almost every corner (CoJ, 2015d).

3.6. Conclusion

Just like the rest of Soweto, Meadowlands was established primarily to house African employees who worked in the mines and other factories in the White areas (Nieftagodien & Gaule, 2012). Thus, as asserted by Beall et al (2003), Soweto is a product of exploitative and segregationist urban planning. Hence, the composition of Soweto's population was solely African. However, as a benefit of the abolishment of racially-based policies, Meadowlands, like most townships in Soweto, now evinces a sense of cosmopolitan sophistication. Contrary to the symbols of poverty, other parts of Meadowlands were uplifted to accommodate the relatively affluent. For example, although this phenomenon can be seen in almost every zone, this becomes most apparent in Zone 6 where modern, stylish houses with high and impermeable walls were built recently. This is another strategy of attracting well-off residents into the area. In addition, two boxes (increasing population density and boosting local economy through increased property values) on the TOD checklist have been ticked off. As a result, this substantiates the fact that the CoJ Metropolitan Municipality has been reinforcing policies centred on the improved provision of basic urban services and upliftment projects that mitigate the effects of urban poverty apparent in formerly underprivileged areas in Soweto (CoJ, 2015a). Today Meadowlands enjoys the benefits of having several shopping centres and a considerable number of social amenities such as schools, clinics and community centres. This was manifested through the implementation of projects such as the BRT system and Orlando Ekhaya plan. Both these programmes were carried out in the sense that they took into consideration that TOD planning stimulates stronger local economies because constructing affordable and rental housing with no transportation networks connecting them to social and commercial hubs would have been meaningless. Thus, the economic development benefits of mass transit are posited through this linkage. Through this lens, one can argue that Meadowlands has become one of Soweto’s most established suburbs.



Chapter Four

4 – DATA ANALYSIS AND RESEARCH FINDINGS

4.1. Introduction

This chapter is designated to the evaluative scrutiny of the information gathered and the discussion of the research findings on the impacts of the Rea Vaya BRT system on LED in Meadowlands. The research outcomes are oriented towards unpacking what the research questions that guided the study aim to ascertain. As mentioned in the first chapter, the relevant data was obtained through conducting in-depth qualitative interviews with business owners and residents, as well as from field observations. The very information was used to ascertain and investigate the synergetic relationship between public transport and economic activities in the area. It was also used in identifying common issues that recurred so as to come up with the main themes encapsulating the collected data.

The first section discusses the roles being played by the Rea Vaya bus stops in the area, followed by the exploration of whether or not the BRT system does provide employment opportunities to the residents. Moreover, the chapter discusses whether the operating BRT serves as a convenient or affordable mode of public transport for people living in Meadowlands. The connection between the 6-year old Rea Vaya bus system and the attraction of external investments along the functional corridor will also be examined. In addition, the study looks at the impacts the BRT has on infrastructure. Comparatively, an overview of other existing dynamics impacting on LED in the area are discussed. For the purpose of this work, I refer to retailers I interviewed as “Businesses”, whereas residents – BRT users and non-users – are labelled as “Consumers”.

4.2. General Perceptions and Assumptions before Fieldwork

Before the qualitative component of the research was conducted, it was taken to be the case that the BRT would have had a substantial influence on the interpretations of people living in the area and that it would be the cutting edge in people’s minds when examining transformation for the most part because it is the first noticeable public transport investment aimed at restructuring Johannesburg’s spatial layout with its more prominent infrastructure (bus stations and exclusively dedicated roadways – in most of its trunk routes). In spite of this, a more nuanced, broader picture of what is actually on the ground had to materialise from interacting with those who are being affected by the operation of the Rea Vaya BRT system from its inception up to the present time in Meadowlands. The research has found that the

major impacts on LED in Meadowlands are associated with both the extensive public sector investment, BRT system, and large-scale private investment, Ndofaya Mall.

4.3. Perceived Impacts associated with the Rea Vaya BRT System in Meadowlands

4.3.1. Impact on the Location of SMMEs

Traders closer to BRT stops indicated that they saw a considerable increase in monthly revenues, while those located at an extensive distance from the BRT route responded negatively. Besides, there are numerous local small enterprises within a distance less than 500 metres from the explored corridor that were established after the BRT project was implemented. To demonstrate, more than half (6 out of 10) of the business owners interviewed started operating from 2010 (Business 1, 2, 4, 5, 6 & 8, Interviewed 06, 10 & 14 August 2015). When asked what motivated them to start their businesses in the area, they mentioned that there are more opportunities in Meadowlands, especially along the BRT route.

Although they indicated that there were high business competition levels, a group of street traders closer to the Rea Vaya bus stop adjacent to the Mall pointed out that their business thrives due to high pedestrian volumes – BRT users and those coming to do shopping at the mall. To put this into perspective, Business 4 (Interviewed on 06 August 2015) stated that: “Rea Vaya and the mall are the magnets that draw more customers for our business. This enables us to even share customers”. On the contrary, traders and spaza shops operating further away from the business district gave a full picture by featuring other factors inhibiting the growth of local small business mentioning a lack of customer support.



Figure 10: Ndofaya Mall is one of the establishments boosting local economy (Source: author, 2015).

Moreover, respondents conducting business more than 500 metres away from the BRT stops observed a decline in pedestrian volumes. This suggests that the BRT system has different impacts on SMMEs in Meadowlands. In illustration, Business 3 (Interviewed 06 August 2015) asserted that: "Rea Vaya only stops at specific points, so it has no impact on my business, maybe those selling cookies and doughnuts at the bus stops in the morning can tell you a different story". Similarly, most business owners feel that, apart from the BRT system, the development of Ndofaya Mall has correspondingly brought many benefits to their businesses. Moreover, both businesses and consumers argued that there is now an improved access to banking facilities, more especially those that bank with Capitec.

4.3.2. Impact on Shopping Practices as observed by Traders

Responses from almost every consumer that participated in this study show that there has been an increase in shopping done locally. It is evident that a decrease in shopping done elsewhere outside Meadowlands is due to the development of Ndofaya Mall – with some respondents indicating that they prefer spending their incomes and generated revenues in Meadowlands due to an increased access to banking facilities. This concurs with the traders' articulations. To give an example, Consumer 2 (Interviewed 06 August 2015) enlightened me by saying that: "Now that there's Shoprite and Pick 'n Pay, there's no need for me to go to Dobsonville or Dube when I want to buy groceries. I also buy bread and airtime from the spaza shop next door".

Despite the fact that a few traders specified that people who buy from them are the general community members, and sometimes train users, the majority of street vendors in the vicinity of *Marsh & Msimanga* and *Heckroodt & Ondendaal* BRT stops made it clear that their regular customers are either the BRT customers or employees (drivers and staff), namely Business 4, 7 & 8 (Interviewed 06 & 14 August 2015). Accessibility, convenience and affordability emerged to be the leading characteristics that encourage them to interact with these local enterprises.

Street traders who have been operating their businesses in Meadowlands before the inception of the BRT stated that they noticed growth in business activities since the Rea Vaya started operating. This suggests that the Rea Vaya mass transit project has had a favourable effect on local business. In that respect, spaza shop owners praised the Rea Vaya's ticket system more than the current smartcard one. Business 9, located in the proximity of *Forbes & Isigwe* Rea Vaya bus stop, supported this view by saying that:

> "You know, our business, as spaza shop owners, used to thrive the time when the BRT used the ticket system because we sold them right here, so instead of just buying a ticket, our customers also bought food stuff on their way to work" (Business 9, Interviewed 14 August 2015).

4.3.3. Impact on Travel Expenses and Time

There was an indication that a decrease in local consumers' cost to access economic or commercial activities (be it shopping centres or local small businesses) resulted from low travel costs. Also, this has been linked with less time that it takes for local consumers to access formal retail centres, schools and workplaces. This has mainly been associated with the introduction of the BRT in Meadowlands.

4.3.4. Impacts Stations would have as opposed to existing Bus Stops

Most of the business owners (7 out of 10), when probed about the differences between BRT stations and stops, responded with a belief that the nature of their business would change for the better if they were to operate within sight of a bus station facility as opposed to the existing infrastructure. Putting this into perspective, Business 7 (Interviewed 14 August 2015) ardently indicated that BRT station would mean more concentration of service users in the proximity of their enterprises:

> "BRT station would have a positive impact on my business. There would be a lot of people congregating in one place. And on their way to the bus station, I'm positive that most people would stop by to grab a fruit".

In contrast, there was one street trader who gave a differing perspective from what others mentioned regarding bus stations:

> "I am not sure, but one thing I am certain about is that there might be restrictions – things like chasing away hawkers within the vicinity of the bus stations – as this is the case in Dobsonville – people who used to sell their stuff along Mashinini Street before the BRT station was built are no longer there – JMPD harassed them" (Business 6, Interviewed 14 August 2015).

4.4. BRT as an Affordable or Convenient Mode of Transport

Almost every business owner who participated in this research was staying in Meadowlands during the period in which the fieldwork was being undertaken, hence they stated that they accessed their

business through non-motorised modes of transport. It was only two of them who said they live elsewhere within the metropolitan area. Coming into the area, they rely on public transport (Rea Vaya and minibus taxis). For transporting their stock from City Deep, CBD or Jumbo Wholesalers, traders mostly use hired private transport and commuter trains at times, while indicating that they rely on either minibus taxis or BRT buses for other purposes. However, those who buy their stock in other areas apart from the above-mentioned, use minibus taxis. Business 3 stated explicitly why the Rea Vaya is hardly ever used when it comes to transporting their merchandises:

> "I use taxis. I only used the Rea Vaya before the tag (smartcard) system because a trip to town (CBD) was only R8, but now people pay about R13.50 for the same distance. So I can't afford to be using it (BRT) to transport my stock because I will have to pay more than I do for a taxi fare" (Business 3, Interviewed 06 August 2015).

Consumers, conversely, more especially those that interact with the Rea Vaya regularly, confirmed that the BRT serves as the affordable and convenient mode of public transport indicating that they spend less on travel costs when asked about the forms of transport they rely on for travelling to other places. Furthermore, they also alleged that this has benefitted them socially and economically since they can now invest their savings in other things such as education and renovating their properties. Consumer 10 (Interviewed 14 August 2015) had much to say pertaining to that:

> "I only use Rea Vaya because it is more reliable and cheaper, I find it. You know, I only spend R450 a month on transport. With that being said, I save a lot of money as compared to the time I was using taxis. With my savings, I am now able to better myself economically. To give you a hint on what I do with this money, I invest it on my kids' education so they can have a better future, [*uyazi*] you know".

On the other hand, some of the BRT users asserted that it is expensive as compared to minibus taxis, but has the advantage that it goes to places where taxis do not go:

> "Rea Vaya gets you where you want to go. All you need to do is transfer from one bus to the other. When I go to work in Rosebank, Rea Vaya drops me off at my company's gate. When I come home after work, I go to Bree (Metromall taxi rank) and catch a taxi since it's gonna drop me off right in the street adjacent to my house" (Consumer 8, Interviewed 14 August 2015).

Non-BRT users think that it caters for middle-class or well-off residents with blue-collar jobs. They also argued that although the Rea Vaya buses seem to be more convenient to their users in the sense that they have their own dedicated busways and right of way, they use minibus taxis because it is cheaper as compared to BRT's distance-based fares, whilst mentioning the Rea Vaya smartcards in passing. However, smartcards were not just a pressing issue to some customers. Consumer 6 (Interviewed 10 August 2015) desolately said she does not prefer taking the BRT home during peak hours because it is always packed to full capacity to a point that some passengers have to sit on the floor.



Figure 11: Minibus taxis continue to play an essential role in providing transport options for people living in Meadowlands (Source: author, 2015).

4.5. General Perceptions and Observations on BRT Services

It was observed that some of the BRT users alight from the buses at the Ndofaya Mall precinct and do groceries – then take the Rea Vaya bus to their final destinations. This symbolises that there is now an enhanced integration of zones within Meadowlands and other Soweto townships (Orlando and Dobsonville). Additionally, when asked about the perceived benefits they associate with the BRT network in Meadowlands, participants mentioned effects such as: improved business and transport

facilities; reduced traffic congestions; an enhanced integration of zones (and other townships in Soweto); and infrastructure development (new bike lanes and well-maintained sidewalks).



Figure 12: Improved pedestrian or non-motorised mobility infrastructure (Source: author, 2015).

Unsurprisingly, interviewees also had something negative to mention with regards to the very BRT system. At this juncture, they talked of a detriment being that when smartcard validators in the Rea Vaya buses are out of service, people alight at their destinations without 'tapping out', so they get penalised the following time they use their cards. This simply means that such penalties add to travel expenses. Boldly, one respondent indicated that:

> "Unlike the then ticket system, the smartcard system cannot be user-friendly at times. It indirectly makes travelling with a Rea Vaya bus costly, more especially when one is not used to it, because a penalty of R13.30 is equivalent to a single trip" (Consumer 9, Interviewed 14 August 2015).

Rea Vaya (2015) claims that the smartcard system is one of the first, convenient public transportation services in the world whereby bank cards are utilised for paying travel costs. Rea Vaya's smartcard service was launched in October 2013, 4 years after the inception of the BRT system in Johannesburg (CoJ, 2015a; Rea Vaya, 2015). In addition to the fact that BRT users are able to load cash onto their smartcards at any Rea Vaya station and selected vendors or ABSA ATMS, they can use them to pay for

goods at stores for transactions not exceeding R200. To support these assertions, one BRT customer said:

> "At first, I didn't like the idea of smartcards. Look at me now! I'm enjoying the benefits that come with their (Rea Vaya's) service. I no longer carry cash around for travelling purposes, I just load it into this card. When I'm at work and it is lunchtime, I use it to pay for my meals at shops" (Consumer 7, Interviewed 14 August 2015).

4.6. Factors Impacting on LED in Meadowlands

4.6.1. Stock Prices

Although there are a few respondents who stated that they buy their stock from Ndofaya Mall or Meadow Point Complex, most of the business operators in Meadowlands buy their stock elsewhere. This implies that the merchandise they sell is not yet readily available in the area. As mentioned before, almost every trader selling fruits and vegetables buys their stock from the Johannesburg Fresh Produce Market in City Deep. As a consequence, they tend complain about high costs of stock and transport. This was highlighted by two respondents (Business 4 & 7, Interviewed on 06 & 14 August 2015). For example, Business 4 expressed that: "In winter, fruits and vegetables are more expensive as compared to the prices we get in summer, and we hardly make profit when stock prices are high".

4.6.2. Competition

Business competition was said to be high among spaza shops and hawkers who sell fruits and vegetables or offer similar services such as hair salons. "There is too much competition in this area because as you can see around, we sell similar goods" (Business 7, Interviewed 14 August 2015). However, one of the hawkers outside the Mall revealed that although there is competition, the BRT stop and shopping centres around make it possible for them to go home with something since they draw more customers into the precinct (Business 4, Interviewed on 06 August 2015).

Contrarily, among those who sell different products – e.g. shoes and second-hand clothes from pavements – most said they are doing well since there are no other traders offering similar products in the proximity of their trading spots. This was articulated well by Business 6 (Interviewed 14 August 2015): "I am the only person that sells shoes in this neighbourhood. This gives me an upper hand because I make profit from this business since there is no competition".



Figure 13: Street vendors selling fruits and vegetables in the proximity of Ndofaya Mall (Source: author, 2015).

4.6.3. Kinship Networks

Apparently, there are no organisational structures in place that govern the SMMEs in the area. However, kinship networks emerged to be playing a crucial role in the growth of these local small businesses in Meadowlands.

> "We have no trader organisations in the area, but the success of my business comes from my relatives and neighbours' support. My relatives refer people to me if they are looking for someone to repair their shoes. I like it when there are more people renting backyard rooms in the neighbourhood because the more people need my service, the more active my business is", said Business 3 (Interviewed 06 August 2015).

According to Simone (2004), kinship systems are deemed very important in the success of one's business in developing nations because they enable people to build their own sustainable sources of revenue.

4.6.4. Other Economic and Social Undertakings

Apart from the aforementioned economic and social activities, residents indicated that they also engage in other associated activities in the area or somewhere else. These activities included banking, hairdressing and going to places of worship. The recently opened branch for Capitec Bank seems to have more customers in the area in the view that almost every participant has mentioned it when asked about activities they carry out. Although there are ATMs in the area (shopping centres and filling stations); those who use other banks either go to Dobsonville or the CDB (Consumer 1 & 7, Interviewed 06 & 14 August 2015). For their trips to these areas, they rely on public transport. Similarly, it is interesting that most ladies from Meadowlands would rather travel to other places for hairdressing purposes (Consumer 5, Interviewed 10 August 2015). Moreover, those who go to church on weekends rely on minibus taxis and private vehicles. Featured in their responses was that the BRT does not operate the same way it does during weekdays or it simply does not go the areas where their places of worship are based. On Saturdays and Sundays, the Rea Vaya buses run at a frequency of 30 minutes; hence this, to them, appeared to be a problem in using BRT services over the weekend, more especially when they are not headed to the CBD.

4.7. Rea Vaya BRT System and Livelihoods

When asked if they traded in other places before, most of the business operators specified that they only started doing so in Meadowlands. It was only a few that stated they traded in other areas prior to coming to Meadowlands. Both these groups said the main reason they do business in the area is the intensity of customers and business opportunities. Taking that into account, other traders pointed out that unemployment pushed them to establish businesses in order to survive, whereas some of them have seasonal jobs. This was stated clearly by Business 3:

> "I currently work on a contract basis, so I only come here when I'm off or have nothing better to do. It's unlike waking up to just watch the sun rises without doing something beneficial. I don't want to regret when the sun sets" (Business 3, Interviewed 06 August 2015).

It was thought-provoking that more than half of the consumers interviewed showed that they are working elsewhere in Johannesburg, not in Soweto. To illuminate, Consumer 10 (Interviewed 14 August 2015) said: "I work at the telecommunication company (Telkom) in town (CBD)". It is also important to highlight that some of them are BRT employees working at Rea Vaya stations in the inner-city. Besides,

those who are working seasonally argued that they are usually discouraged by their low-paying temporary jobs; thus, they are now trying to enhance their employability or honing skills through studying (in Dobsonville and Doornfontein) or resorting to hawking (Consumer 2, 3 & 4, Interviewed 06 August 2015).

Interestingly, unemployed property owners in the area resorted to leasing backyard rooms and shacks in the area or other places for survival and indicated that they do rely on the BRT for travelling purposes. This was better articulated by Consumer 1: "I have not been working for the past 6 years, so in order to survive, I am currently leasing rooms in Mpumalanga where I used to stay". Furthermore, it was clear from communicating with him that his family relies on the Rea Vaya services:

> "Although I have been unemployed for the past 6 years, I started using the Rea Vaya buses in 2013. I use them whenever I go to town (CBD) or my daughter's school. She attends school in Industria, so I bought her the RV40 (Rea Vaya 40 trips) tag – this service has been discontinued, so new BRT customers can no longer use it. It only costs me R360 to pay for her monthly tag. One trip fare ranges from R10 to R13, depending on the time of the day. The best time to use the Rea Vaya buses is during peak hours because it is a lot cheaper" (Consumer 1, Interviewed 06 August 2015).

4.8. The Link between Rea Vaya and External Investments

Just like other businesses that chose to operate along the BRT route, Ndofaya Mall has been strategically placed adjacent to a BRT stop, *Heckroodt & Ondendaal*. This, according to Silva (2010), is a means to maximise the reported benefits of operating along a public transport thoroughfare. The very strategy has been applied by the computer store located a few metres away from the *Forbes & Isigwe* bus stop. One of the co-owners said:

> "*Uyazi* (you know), my colleague and I noticed that Rea Vaya is used by students and corporate people, so in order to seize that opportunity, the nature of our business had to change from operating public phones. We've now decided to sell computers because these guys (BRT customers) need our products" (Business 10, Interviewed 11 September 2015).

Most customers located close to the Mall and Meadow Point prefer buying their daily needs from these shopping centres. Whereas those who are at a considerable distance tend to buy from spaza shops and

hawkers reflecting that they are more accessible and their merchandises are sold at reasonable prices. One of the respondents brought up another interesting factor on why some residents tend to avoid local spaza shops that are run by foreign nationals. He stated that he does not buy from them for the reason that most of them do not own properties in which their business operate, so they alternatively use the very spaces for housing purposes (Consumer 1, Interviewed 06 August 2015). This means that no matter how convenient the location of small enterprises run by foreign nationals is, locals bypass them by going to shopping centres or other preferred local establishments. The lack of support from customers leads to closure of businesses. As a result, this circumstance has negative impacts on the growth of the local economy.

Moreover, even if they do interact with hawkers and spaza shops, most consumers disclosed that they do go to local supermarkets for bulk grocery shopping. “This is another effort to save money, because it is a convenient and cost-effective way to cheaply buy goods in large quantities” (Consumer 6, Interviewed 14 August 2015).



Figure 14: One of the spaza shops operating along the BRT route studied (Source: author, 2015).

4. 9. Discussion of Main Findings

Considering the fact that the dominant economic activities in Meadowlands are SMMEs, enhanced by the presence of neighbourhood shopping centres, this section unpacks the responses from the in-depth, qualitative interviews about the impacts of BRT systems on economic development and modified key themes based on the sub-questions defined in Chapter 1 and pinpointed how the gathered information was analysed throughout the discussion. Sustainable and convenient public transport provision appears to be having a positive impact in Meadowlands. Commercial activities became more intense after the introduction of the BRT in the area. To give an instance, the establishment of local small businesses from late 2009 and the development of Ndofaya Mall in 2012 on the Rea Vaya bus route suggest that these commercial enterprises are a response to improved transportation facilities. Furthermore, it is evident that the variety of merchandises and services along the BRT corridor in the area has contributed to a vibrant business environment in this neighbourhood.

Research findings and conclusions have shown to be consistent with the outcomes of several studies that evaluated the effects of the operation of the BRT systems in South Africa and other countries before. However, this study provided a more nuanced analysis of the effects of the Johannesburg's Rea Vaya BRT system with a clear focus on the connection between public transport and commercial activities in Meadowlands, one of Soweto's emerging economies. Thus, the unprejudiced conclusions of this work were drawn from participants' personal narratives, field observations and theory so as to look into the overlooked effects of BRT networks in relation to economic development. Moreover, there are negative externalities and complexities associated with the new Rea Vaya smartcard service as indicated by some of the BRT customers. From the study, this was said to be affecting people who are at the low strata of the social hierarchy.

Although exploring the relationship between formal and informal businesses was not part of this exploratory study at the outset, my interviews with local retailers showed that there are positive externalities that come with formal retail centres in the area. In that sense, Ndofaya Mall and Meadow Point Complex are perceived to be reinforcing the growth of SMMEs because they offer a wide range of goods and services at affordable prices for local business and consumption. Similarly, the development of these neighbourhood shopping centres and other commercial establishments in Meadowlands has enabled local residents and shoppers from the neighbouring townships to save on travel costs by bringing a wide range of both high and low order services closer to their places of residence. This basically denotes that people prefer to spend a substantial percentage of their salaries and revenues

locally. During the course of the study, I learnt that the Rea Vaya BRT project in Meadowlands has been carried out in such a manner that it attracts external investment which in turn improves infrastructural and housing development (medium or high-density housing projects).

4.10. Conclusion

This chapter has presented data analysis, fieldwork outcomes and a discussion of the research findings. All things considered, it becomes apparent and consistent to theoretical validations and rationalisations that having viable public transport and easily-accessed shopping precincts in emerging economy areas is a means to develop sustainable communities. This is the case in Meadowlands where the BRT system and commercial establishments – formal shopping centres and growing informal economy – do have positive impacts on improving consumers' standard of living or livelihoods. Evidently, these two main projects – BRT system and Ndofaya Mall – directly and indirectly generated employment prospects for local residents and enhanced local economic development (growth and productivity). As illustration, the Rea Vaya network enabled its users to save on travel expenses and increased productivity at work. This leads me to the next chapter, in which the implications of the findings for BRT projects and associated policies and strategies – such as those that are central to this research, TOD and LED – will be discussed.



Chapter Five

5 – CONCLUSION AND RECOMMENDATIONS

5.1. Introduction

In relation to the research questions posed in the introductory section, this chapter draws out the main conclusions, together with their implications, from the implementation of TOD and LED projects in the context of Meadowlands. The main research question asked the following: In which ways *is the Rea Vaya BRT system in Meadowlands impacting on Local Economic Development?* This exploration was addressed through the following sub-questions:

- *What do the theories of LED and TOD entail, and how are they related to one another?*
- *How does the BRT policy in Johannesburg intend to promote LED and TOD?*
- *What impacts, according to primary sources, does the Rea Vaya system have on access to social and economic opportunities in Meadowlands?*
  - → *In what way do the BRT bus stops in Meadowlands have a different impact than BRT stations in other areas?*
  - → *To what extent is there evidence that the BRT system has generated sustainable employment opportunities and affected livelihoods in Meadowlands since its implementation?*
  - → *To what degree does the BRT currently serve as an affordable and convenient means of mass transit for people in Meadowlands?*
  - → *What kinds of investment and local business establishments, if any, have been attracted or influenced by the implementation of the BRT project in Meadowlands?*
  - → *To what extent has the implementation of the BRT enhanced the development of local infrastructure and properties in this area?*

Since these research questions encapsulate the key research findings in relation to TOD and LED projects, this chapter discusses areas for further research and recommendations, as well as considering the manner wherein lessons learnt from this study can be carried out.

5.2. The Application of TOD Policies in Johannesburg

TOD has increasingly been a feature of planning policy in Johannesburg, throughout South Africa and across many countries ever since metropolises strive to improve their urban forms through effective

regional planning and urban design approaches. The BRT project is intended to have the effect of curbing urban sprawl or unplanned growth in an urban setting by providing basic conditions for high density, compact environments geared by public and private interventions. Johannesburg's growth rate depicts that the Rea Vaya BRT system's future is optimistic. As reflected in the Joburg 2040 GDS preface, this population growth of people living within the confines of the metro is fuelled by globalisation, migration and capital mobility. Significantly, this also paves a way for BRT-oriented developments across the metropolis. In the last couple of years, the City of Johannesburg has been developing a consistent policy based on sustainability principles – as stipulated in its GDS documents – that give priority to mass transit and non-motorised means. In the main, the objective is to redevelop Johannesburg into a compact, transit-oriented city. For this to be accomplishment, nonetheless, Johannesburg has to effectively implement a course of action that deals with persistent critical issues such as spatial, social and economic affairs it is faced with.

This research reaffirms standards and principles underpinning an integrated transport planning process which has been carried out by the CoJ in responding to and realising broader, inclusive urban planning objectives. Furthermore, it has provided a qualitative exploration of how TOD objectives influenced social and economic development enterprises in Meadowlands and has used four BRT stops as a case study – the management of bus stations tends to favour or promote the formalisation of the informal economic activities. It sought to broadly comprehend how the Rea Vaya system impacts on people living or conducting retail activities in the area. This was motivated by the fact, prior to this work, that such research in urban contexts where BRT systems have been implemented – in the country or abroad –is limited. In that respect, insights and conclusions reached in this systematic study could be valuable to city planners and relevant stakeholders or cities that aspire to invest in effective TOD projects aimed at enhancing people's standards of living socially and economically.

5.3. Perceived Outcomes of TOD Projects

Today's interest in implementing TOD projects in the context of Johannesburg has nurtured the growing aspiration in developing BRT corridors. Moreover, the nature of the ever-changing retail market forces and supportive developments influencing the development of these corridors has triggered end users' array of varieties for household requirements. Thus, the implementation of the Rea Vaya service has favoured and encouraged these household necessities. The findings of this research support the notion that an improvement in public transport facilities and infrastructure has positive impacts on economic

activities. Research conducted in Meadowlands revealed that people living near the BRT facilities are likely to use these public transport services more frequently than their counterparts living further away from the C1 complementary route. The benefits of successful TOD projects that were witnessed by residents and retailers in Meadowlands included: improved retail access, increased employment opportunities, wide range of housing provisions, increased productivity due to time-saving mechanisms, partially integrated mobility systems (public transport, cars and bicycles) and improved pedestrian infrastructure. The synergy around transit station areas is usually stimulated by appropriate zoning that is context specific (Carlton, 2009). Correspondingly, this symbiotic relationship between residential properties and convenient stores and service dealers is enhanced by reliable and quality public transit. However, theoretically, this is usually apparent in an infill development project where a variety of activities tend to positively interface with each other. This study drew principles and conclusions from a variety of academic materials and case studies conducted in South Africa or elsewhere across the globe. However, since successful projects cannot be easily adopted from one place to the other, only a few principles can be considered relevant in solving context-specific solutions. To supplement this phenomenon, BRT or urban planning projects should not be based on “one size fits all” principles. I return to this recommendation below.

5.4. Summary of the Key Research Findings

In the rapidly growing metropolitan areas such as Johannesburg, TOD projects gained popularity for they are considered as strategies for effectively accommodating the expanding communities and their needs due to the fact that they do promote smart growth principles. These principles favour the idea of intensifying harmonious land uses that will at the end expedite public transport ridership. In that sense, public transport can thus influence the design of the urban form and minimise people’s dependence on cars. In the course of examining Johannesburg’s BRT system, this exploratory research looked beyond the mounting concerns the TOD objectives aim to address, such as curbing urban sprawl or reducing traffic congestions. It was aimed at unpacking how the Rea Vaya Rapid Transit planning procedure, as a TOD project, triggers LED initiatives since more than half the populace of Johannesburg still live below the poverty line. Although the policies of TOD and LED become well entrenched in the development context in South Africa and internationally, there remains a substantial gap between their objectives and the ways in which they are put into practice.

TOD has the power to synchronise a wide-ranging continuum of urban conditions – traffic congestion, urban sprawl, housing shortages and environmental issues – by enhancing quality of life for people living in Meadowlands and generating returns or profits for the investors. Although this is the case, the contextual analysis of the area has shown that BRT systems and taxi associations currently lack unifying policy objectives in the view that they are not a seamless transit system. This is whereby residents or commuters tend to have one-sided narrative about the modes of transport they prefer using for travelling or other purposes. Thus, the scope of urban transit reform aiming to integrate the two dominant transport means and their impacts have to be more tangible when filling grey areas that currently exist in the area. In effectively exploring these avenues, Meadowlands or Johannesburg on the whole will be a city conducive to a mass urban transit system.

Theoretically, TOD facilitates vibrant mixed-use economy and enhances accessibility to both social and economic facilities usually in a functional dense urban form through public transport and non-motorised modes. However, Meadowlands basically has pockets of mixed uses laid out horizontally (monofunctional land uses), as opposed to compact, vertical uses, but yet it is thriving. Hence, this study was enthused by a desire to explore how the Rea Vaya BRT project as a TOD initiative influences economic and social undertakings in the area. Thus, most importantly, this survey offers unique insights into the field of transit oriented planning practices that are not yet tangible to people whom the implemented projects are intended to benefit. What is more is that the recently opened Ndofaya Mall is said to be improving neighbourhoods' economic climate and quality of life because it provides them with a range of goods and services for which they previously needed to travel elsewhere. Local retailers and entrepreneurs also indicated that the Mall has had positive impacts on their businesses since trading activities flourished after its development.

In the framework of this research, it has been discussed that the way in which the Johannesburg's Rea Vaya BRT project has been rolled out with regards to its infrastructure – bus stations and stops – has been identified as the strategic facilitator of TOD and LED initiatives. With this in mind, the mass transit project was implemented before commercial activities or mixed use developments materialised. At this moment in time, these establishments are found mainly around transit nodes and along the studied route. This implies that this strategy overlooked compact development initiative for the provision of mass transit first. Thus, further studies exploring the impacts of the BRT systems on economic growth in the context whereby this relationship works in reverse in the sense that this form of inquiry could be anticipated in reviewing how the conclusions turn out to be as compared to findings of this research.

Transit station areas in most emerging economies – Meadowlands, Orlando or Diepkloof – are currently located in places where not all community members get to share all the benefits that come with them. Consequently, those that do not get to interact with the BRT services tend to rely on private transport to access their day to day activities – be it getting to workplaces, shopping or recreational facilities. Therefore, the current operation of the Rea Vaya buses cannot be pronounced as a superlative method of sustainable urban planning. Nonetheless, the BRT has, up to the present time, managed to redress some of the imbalances of the past by uplifting the previously marginalised areas. To back this up, areas connected by the Rea Vaya systems responsively changed for the better. All the same, some opportunities to optimise the impacts of the BRT were not seized in the sense that some vacant land along the BRT route is still not utilised productively.

At the present time, a considerable percentage of people living or working in Meadowlands still lacks accessibility to BRT facilities due to the fact that the recent travel fares are said to be high for the purchasing capacity of the unemployed and low-income earners. In its maturing stage, the BRT is currently a complement to the existing commuter rail and other forms of public transit networks. Thus, in the context of Meadowlands, the Rea Vaya service has diversified the mobility choices available to citizens. However, for these transit networks to have a substantial impact, they should be fully integrated into one functional system. With its varying contexts in which the BRT systems traverse, the City of Johannesburg Metropolitan Municipality desires to develop a development policy that applicably responds to them. Consequently, in complying with current global shift in planning discourse towards sustainable development, urban transit policies in Johannesburg, are progressively being directed towards realising TOD and LED outcomes.

5.5. Recommendations

The case study demonstrated positive social and economic benefits of the BRT systems. Therefore, it is feasible to suggest strategic recommendations for planning the expansion of BRT systems in the future. Lessons learnt from the Rea Vaya BRT network and other implemented mass transit projects around the world apprise broad recommendations for how effective policies and projects do maximise the net socioeconomic and environmental gains of BRT projects. To prescribe the nature and quality of urban transit infrastructure executed across South Africa at a local level, national and municipal urban transport and development policies must be designed to embolden transparency and obligations in evaluating economic and societal implications of both public and private sector investments. In that

regard, it is important to comment on the functions of the Johannesburg Development Agency (JDA) in the sense that it is a developmental organisation operating at the local government level with a mandate to implement a variety of socio-spatial and economic development ventures across the metropolis. For example, the Rea Vaya's Corridors of Freedom is one of these milestones. An analytical conduit explaining the critical examination of the implications of public transport projects is also seen through the lens of the JDA in the sense that it deals with the shortfall in infrastructure during the pre-1994 urban landscape. Through the works of its development agencies, the City of Johannesburg intends to transform the city into a sustainable human settlement – and a World-class African city. Primarily, these development agencies are designed to enable local government structures to work with relevant stakeholders and local communities in finding sustainable ways to meet economic and societal needs. This implies that involving nationwide transport investment institutes in urban transit planning can, to a certain extent, adequately help the CoJ make public transport projects catalyse the widespread implementation and expansion of BRT systems. The development of efficient BRT networks thus arranges the groundwork to reinforce the capacity of developmental institutions at the local government level which in turn puts public transport regulations into effect.

South African cities, Johannesburg and Cape Town, studied the workings of Curitiba and Bogota's BRT systems as their precedents for Rea Vaya and MyCiTi operations respectively. Wood (2015) states that in 2003 the City of Cape Town tried to adopt a Bogotá-style BRT network. However, this attempt to implement a first city-wide BRT project was unsuccessful. Though this endeavour is hailed for being a cornerstone for the implementation of MyCiTi IRT system, it provides the valuable lesson that one successful and celebrated model of BRT system in a particular context does not guarantee success in other settings. In Johannesburg, Rea Vaya's first phase was first rolled out in the city centre and the previously disadvantaged neighbourhoods to accelerate and foster social and economic development. From engaging with a range of sources on TOD projects, this work unpacked how the Rea Vaya BRT plan has been successfully carried out in Meadowlands. This project demonstrated that there are no fixed, universal solutions to urban transport challenges; hence they should be guided by the surrounding, established physical ambiances within which they are executed. To a great extent, the Rea Vaya system operating in Meadowlands, unlike the failed attempt of the Bogota-style BRT project in Cape Town, has achieved most of the quantified objectives of mass transit projects by taking into account the social and economic dynamics that exist in the area.

The case study of Meadowlands confirms that improvements in mobility conditions in an urban setting has a positive influence on economic development. Although this is the current state of affairs in Meadowlands, this is one of the development attempts that can be facilitated by ensuring that BRT systems are to be effectively planned to best accommodate the traversed contexts and community travel demands. By the same token, the current BRT running in Meadowlands, as indicated by most of its users, has helped in reducing the time it takes to access social and economic amenities daily. This has been associated with the key design element of exclusively designating lanes for the Rea Vaya buses. Though it has to do with choice, this sort of information needs effective channels to be communicated out to those who have not used the BRT yet in order to attract more users. The same goes to passenger fares. BRT travel fares from Meadowlands to the inner-city areas are slightly higher than those of minibus taxis and Putco services. Respondents indicated that one Rea Vaya bus trip costs about R13.50, whereas they pay about R10 when using minibus taxis or Putco buses. So, in order to improve the BRT service's accessibility to poor residents and those who are in low-paying jobs, BRT user fares must be comparable to other public transport options available in Meadowlands. . To reiterate this in relation to Bickford's (2015) deductions, affordability promotes social and economic equity and fosters social interaction among the variety of users from different backgrounds.

In exploring the notion of public transport and its associated benefits, this study supports the outlook that the proximity of symbiotic activities sets in motion for successes of TOD and LED projects. The fusion of activities also creates a platform for functional transit-oriented communities. On the contrary, the provision of public transport facilities where there are no adequate housing, social and economic amenities around them does not basically ensure the success of the provided services. Apart from being mentioned in passing, the fact that some of the Rea Vaya buses get overfilled during rush hours might be among the reasons for discomfort in using the BRT service. As a result, dissatisfied users tend to shift modes of transport from public to private ones. Those who saw this as a hindrance to using the Rea Vaya services may perhaps feel comfortable again if this is effectively dealt with. During the period in which the survey was being undertaken in the study area, it was also noticed that all the Rea Vaya bus stops did not have erected nor natural protective coverings providing protection from extreme weather conditions. However, one cannot just jump to conclusions and pinpoint this as an issue holding some of the Meadowlands residents back from using the bus service.

Against the backdrop of developmental projects, although not directly looked at in the exploration of key concepts and policies in this study, there are experts that design and oversee them prior to

execution. As an illustration, Handley et al (2011) affirm that major public transit projects are mostly designed and overseen by transit civil engineers despite the fact that other professionals do provide essential input. This reflects that these projects tend to be treated in the same technique as highway systems since the application of similar planning and engineering principles will be amongst the top priorities on the checklist. Despite that, some of these projects are not successful on account of dealing with TOD strategies as just a land-use problem. The planning and implementation of these programmes in essence require not just civil or transportation engineers, but a multitude of stakeholders. For example, urban planners, urban designers and land use experts, as well as community organisations. This process in that case becomes crucial in realising integrated planning solutions and broader objectives. Most importantly, this strengthens the relationship between TOD and LED.

5.6. Areas for Further Consideration

Apart from using the key findings as a point of reference, there are a number of subject matters that emanated from this study. These deserve further exploration. Put into perspective, this research used a single case study to generate mixed insights from the Rea Vaya BRT project impacts as one form of public transport in Meadowlands. Given the picture that such an exploration has not been conducted in the context of Johannesburg, or South Africa in general, more qualitative, exploratory research must be carried out to test the key findings in other settings. Since this research is qualitative, a quantitative investigation could compliment my qualitative insights with hard and fast numbers on which form of transport is dominant or more preferred in Meadowlands.

A study of the dynamic relationship between the BRT system and economic activities in suburban areas such as Parktown and Rosebank and the inner city residential neighbourhoods – Yeoville and Berea – would be useful at this juncture to see whether or not the implications will be of the same nature as of those discovered in Meadowlands. Instead of just championing the already-implemented, successful models of the explored concepts, further studies should ponder the subject matters of geospatial and environmental analysis in comparison to the connection between transit ridership, density and property values and other economic activities not explored in this case study along the studied BRT route in Meadowlands or other contexts of its nature may improve future transit planning or associated TOD outcomes. In order to broaden the theoretical intuitions and provide valuable information that is context-specific to transport engineers, urban planners and designers as hypothesised in this study and other existing empirical knowledge domains, more qualitative research is indispensable.

5.7. Conclusion

It has been established in the study that the BRT project as carried out in Meadowlands is indeed an LED initiative in the perception that it has encouraged the establishment of new local enterprises (formal and informal); enhanced the growth of the already existed SMMEs; enabled a conducive environment for external investments (commercial and housing projects); helped in generating sustainable livelihoods for the previously disadvantaged communities and improved the development or provision of physical infrastructure. In consequence, this exploratory study endeavoured to contribute to the growing knowledge domain of regional planning and urban development through the exploration of the linkages between the implementation of citywide transportation projects and LED initiatives. Moreover, the BRT system, in collaboration with other public transport means (Putco and minibus taxis), in the context of Johannesburg was introduced to restructure the enduring apartheid landscapes and prompt urban renewal in some of its neighbourhoods.

The processes of spatial reconfiguration and revitalisation are devised, within a reasonable appraisal, to challenge the two completely different worlds – well-serviced, green suburbs and underserved, overcrowded townships – that do exist in South Africa's urban contexts where much vitality is still profaned by spatial, social and economic divisions. All these factors do have their mixed effects – whether positive or negative – on socio-economic and spatial development at any given context. In due course, the City of Johannesburg is making progress in redefining its landscape with integrated public transport systems since they are geared to achieve economies of scale. For the most part, this research engaged with a traditional way of approaching the impacts of BRT systems on LED. In the main, the study reflected on how mass transit affects the establishment of SMMEs, relevant investment, employment and household spending habits. In order to provide a more balanced comparison in relation to this study, further research exploring the economic impacts of the BRTS systems on economic development in the context of Johannesburg and other South African cities that are currently improving or investing in integrated public transport networks is warranted.

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Local traders operating in Meadowlands, Soweto

Business 1. August 06, 2015. Street trader selling fruits and vegetables. Zone 6, Meadowlands.

Business 2. August 06, 2015. Tailor. Dube.

Business 3. August 06, 2015. Shoe cobbler. Zone 4, Meadowlands.

Business 4. August 06, 2015. Sells fruit and vegetables. Zone 5, Meadowlands.

Business 5. August 10, 2015. Hairdresser. Zone 4, Meadowlands.

Business 6. August 14, 2015. Selling second-hand shoes. Zone 3, Meadowlands.

Business 7. August 14, 2015. Street vendor trading fruits and vegetables. Zone 3, Meadowlands.

Business 8. August 14, 2015. Sells prepared foods on the street. Zone 6, Meadowlands.

Business 9. August 14, 2015. Spaza shop operator. Zone 6, Meadowlands.

Business 10. September 11, 2015. Co-owner of computer shop. Fordsburg.

Consumers residing in Meadowlands, Soweto

Consumer 1. August 06, 2015. Unemployed. Zone 2, Meadowlands.

Consumer 2. August 06, 2015. Works in the CDB. Zone 4, Meadowlands.

Consumer 3. August 06, 2015. Goes to college in Dobsonville. Zone 6, Meadowlands.

Consumer 4. August 10, 2015. Student at Central Johannesburg College (Doornfontein). Zone 4, Meadowlands.

Consumer 5. August 10, 2015. Part-time job in Sandton. Zone 5, Meadowlands.

Consumer 6. August 10, 2015. Works in the CBD. Zone 6, Meadowlands.

Consumer 7. August 14. 2015. Works at Gauteng Roads and Infrastructure Department. Zone 6, Meadowlands.

Consumer 8. August 14, 2015. Works in Rosebank. Zone 4, Meadowlands.

Consumer 9. August 14, 2015. Works in the CBD. Zone 6, Meadowlands.

Consumer 10. August 14, 2015. Telkom employee. Zone 2, Meadowlands.

APPENDIX A: SEMI-STRUCTURED INTERVIEW WITH RETAILERS

The main aim of interacting with business owners and other commercial activities in the Meadowlands area is to find out about business people's perceptions of the impacts (positive or negative) of BRT systems on their business establishments.

1. Do you mind if I ask you about where you live? How long have you lived there?

2. How do you get here (if not residing in Meadowlands)?

3. Could you tell me which of your merchandise do you sell most of, and why?

4. Do you experience competition from other traders in this area or elsewhere – what do you think is the cause of that?

5. Have you traded in other places before, if yes, where? What motivated you to start a business in this area?

6. For how long has your business been operating in this area?

7. What changes, in terms of business activities, have you noticed before (2008) and after (2009) the inception of the BRT?

8. Where do you usually buy your stock from, and how often? What modes of transport do you use for your stock?

9. Who do you think your regular customers are? What makes them come here and be your customers?

10. What mode of transport do you use for traveling or other purposes?

11. What do you think of the Rea Vaya system? What impacts do you think the Rea Vaya routes has on your business?

13. Do you think the Rea Vaya bus stops in this area affect the community and business differently from the way that BRT stations do in areas like Orlando and Diepkloof?

14. What are the advantages and disadvantages of operating a business within the vicinity of the BRT stops?

12. Is there anything else you would like to share about your business, which you think might be useful for my study – for example, other factors you think contribute to growth or decline in commercial activities in the area?

APPENDIX B: SEMI-STRUCTURED INTERVIEW WITH RESIDENTS

The main aim of interviewing residents in the Meadowlands area is to find out about their perceptions on the roles played by the BRT systems with regards to the impacts on their livelihoods.

1. How long have you been living in Meadowlands?

2. What do you do for living? If you are working, where do you work?

3. What form of transport do you take to work, and why?

4. How much do you spend on transport a month? Does this limit or enable you to better yourself socially and economically?

5. There are vibrant business activities such as street traders, spaza shops and shopping centres in this area. Which one of these establishments do usually buy your daily needs from, and why?

6. What kind of items do you purchase from these establishments?

7. What other economic activities are available in this area? What other economic or social activities that you do in other areas – things like banking and other associated services (hairdressing), and how do you get to there?

8. What do you think about the Rea Vaya system?

9. What impacts do you think the BRT had on business in the area since its implementation?

10. What are the benefits and detriments associated with the operation of the BRT in this area?

APPENDIX C: PARTICIPANT INFORMATION SHEET

PROJECT TITLE:
The Impact of Bus Rapid Transit Systems on Local Economic Development: The Case of Meadowlands, Soweto.

INTRODUCTION:
My name is Matimba Ngobeni. I am a student in the honours degree in Urban and Regional Planning at the University of the Witwatersrand. Currently I am conducting research as part of my studies. The title of my research project appears above. I would like to conduct an interview with you for my research. Before you decide to accept or decline, I would like to explain why the research is being done and what it involves. Please take time to read the following information carefully and you may discuss it with others if you wish. Please ask if there is anything that is not clear or if you would like more information. If you agree to take part in this study, I will request that you sign a Consent Form. Please make sure you have read and understood the information provided. Thank you for reading this.

METHODOLOGY:
This research involves interviews. The study focuses on the business activities that take place within a 750m radius from three BRT stops in Meadowlands. This involves formal business owners, spaza shop owners and residents who use the BRT or interact with these business establishments on a daily basis. Each interview will take 15 to 30 minutes.

PARTICIPANT'S RIGHTS, CONFIDENTIALITY AND ANOMYMITY:
In this study, I commit to the ethical standards set out by the University and to protect the rights, autonomy and safety of participants. This means you may decide to stop the interview at any time without explanation. You may also ask that any of the information you supplied be withdrawn. It also means that I will not use your name in my study without your permission, and I will not give any of the information I gained through the interviews to anyone else. All information collected during the interview will be used only for the purposes of my academic research project and possibly for conference presentations. The dissertation which I have to write about this research will be available at the University library after examination at the end of this year. I will comply with the university rule that all the typed transcripts of the interviews will be stored safely for 7 years. If you have any questions as a result of reading this information sheet, please feel welcome to ask me for clarification before the interview begins or during the interview.

BENEFITS AND RISKS:
There are, to my knowledge, no benefits or risks related to your participation in this study. Your participation in this study is voluntary and there is no provision for payment, reimbursement or compensation in return for your participation. While I am not able to promise that the study will help you personally in any way, I do hope that my research will help to increase the understanding of how the Rea Vaya bus system enhances economic development for local residents. If at all possible, this will help urban planners and the government in implementing sustainable and effective bus rapid transit projects.

FEEDBACK:
Should you wish to receive a summary of the results, please let me have your contact details in the space provided on the Consent Form and I will be delighted to send this to you.

FOR FURTHER INFORMATION:
If you want to find out about the final results of this study, you can contact me on 079 031 1273 or matimba.ngobeni@students.wits.ac.za.

You may reach the supervisor of my research, Professor Marie Huchzermeyer, on 083 424 2457 or marie.huchzermeyer@wits.ac.za.

APPENDIX D: INFORMED CONSENT FORM

Title of research project:
THE IMPACT OF BUS RAPID TRANSIT SYSTEMS ON LOCAL ECONOMIC DEVELOPMENT: THE CASE OF MEADOWLANDS, SOWETO

Name of researcher:
MATIMBA NGOBENI

Contact details:
079 031 1273 or matimba.ngobeni@students.wits.ac.za

I understand that the research is for academic purposes, primarily the researcher's dissertation for his honours degree at Wits University.

I understand that my participation is voluntary, therefore I may refuse to be interviewed, may refuse to answer any of the questions and I may withdraw from the research process at any point. Should I consent to my name being used in citations of the interview, I also understand that I may request that certain statements be cited as anonymous (without my name being associated with them).

- I hereby **agree / disagree** to be interviewed [cross through the option that does not apply]
- I hereby **agree / disagree** for a voice recording device to be used [cross through the option that does not apply]
- I hereby **agree / disagree** to my name being used in citations of the interview, except where otherwise requested in the course of the interview [cross through the option that does not apply]

Participant's name (optional) – please print:

_____
Participant's contact details (optional):

_____
Participant's signature:

_____
Date:

_____

Please return the consent form to the researcher after completion.

APPENDIX E: POPULATION COMPOSITION

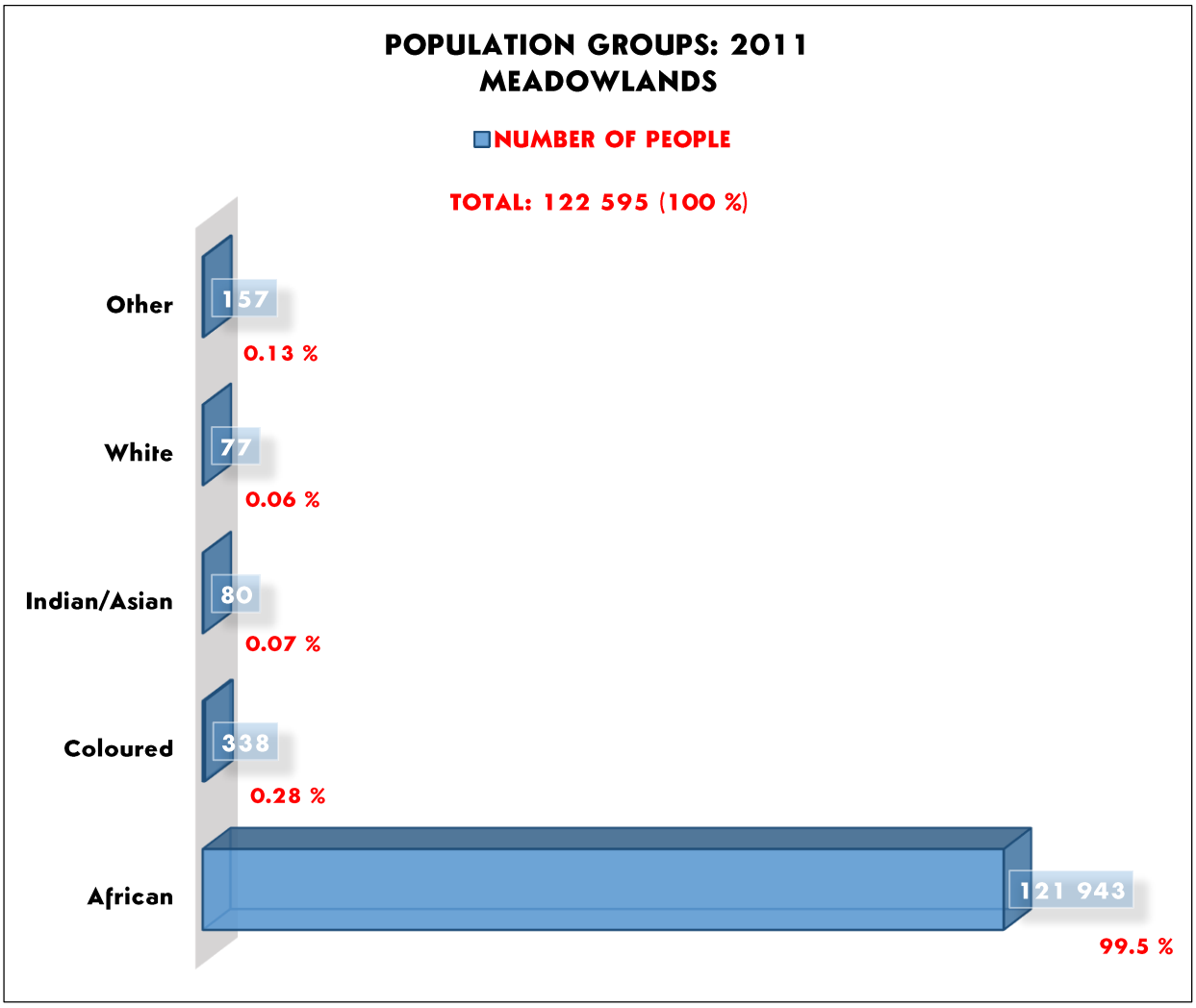


Figure 15: 2011's population make up that existed in Meadowlands as per apartheid era categories

(Source: author's construction, based on StatsSA, 2011).

APPENDIX F: POPULATION GROWTH (DEMOGRAPHICS)

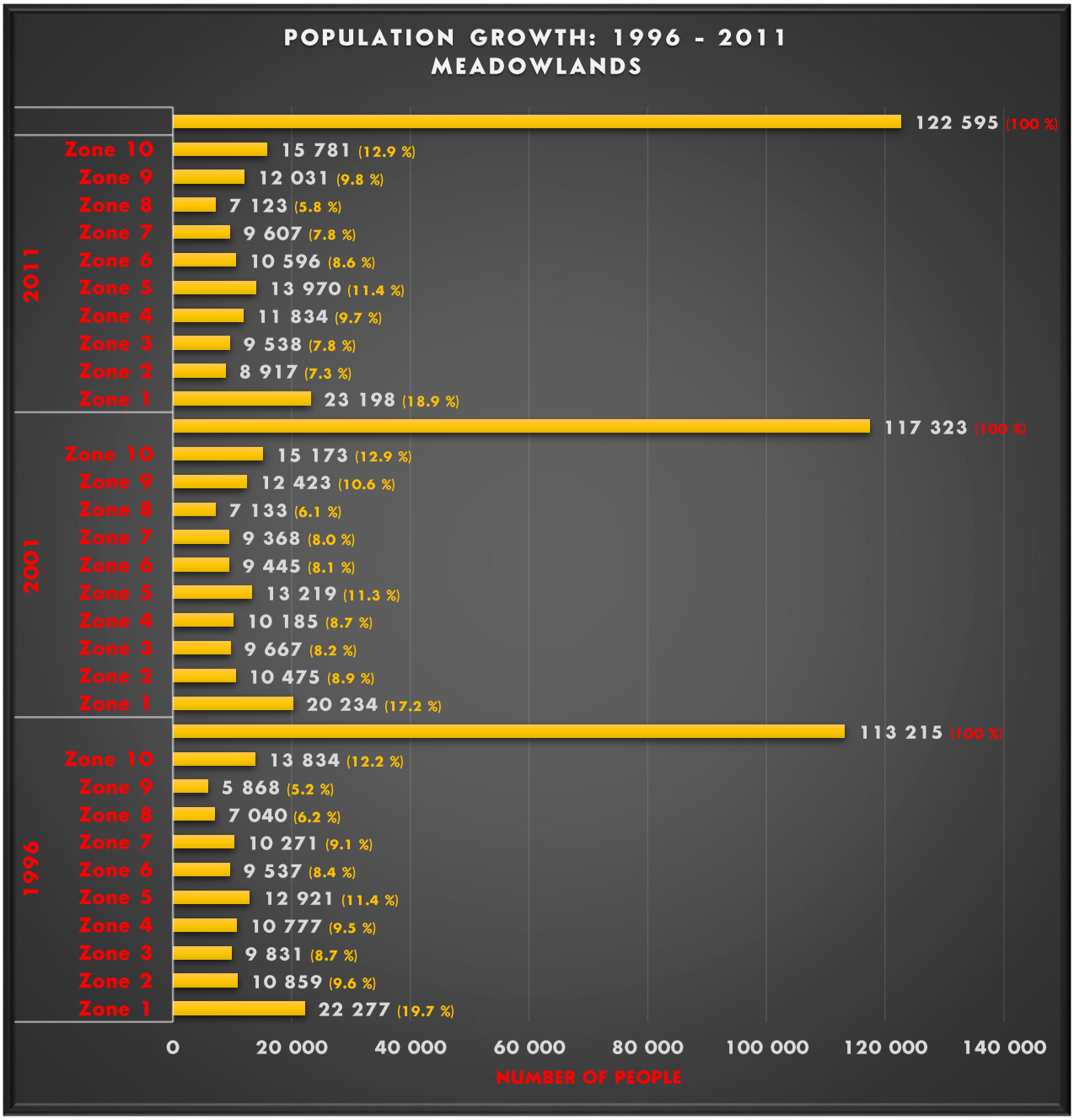


Figure 16: Population growth in Meadowlands from 1996 to 2011

(Source: author's construction, based on StatsSA, 2011).

APPENDIX G: EMPLOYMENT STATUS

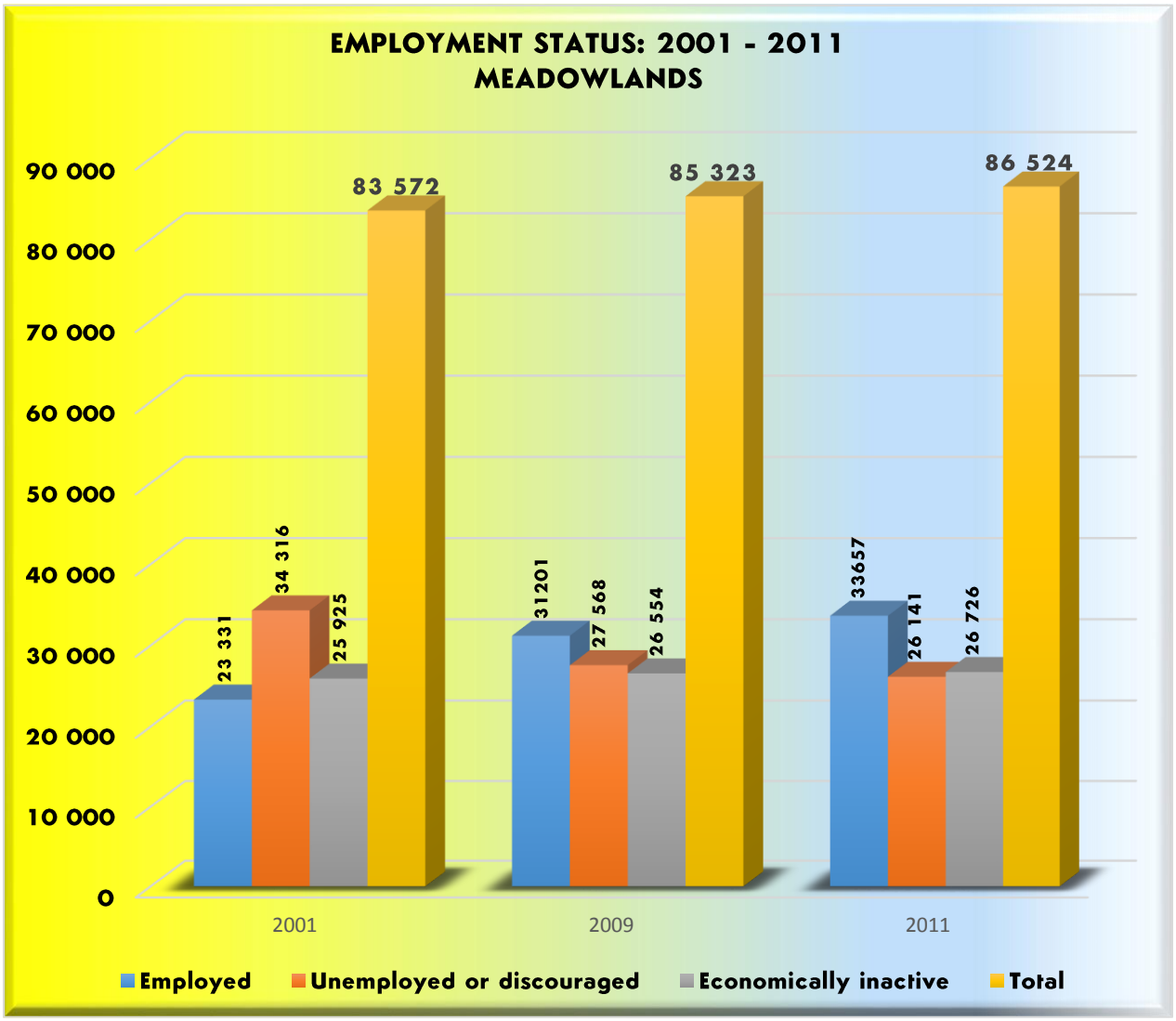


Figure 17: Labour force in Meadowlands as from 2001 to 2011

(Source: author's construction, based on StatsSA, 2011).

APPENDIX H: HOUSEHOLDS AND DWELLING TYPES

Table 2: Households and forms of housing people live in in Meadowlands

(Source: author's construction, based on StatsSA, 2011).

DWELLING TYPES	NUMBER OF HOUSEHOLDS
FREE-STANDING HOUSES	21 749 (65.4 %)
SEMI-DETACHED HOUSES	6 310 (18.98 %)
FLAT OR APARTMENTS	330 (0.99 %)
CLUSTER HOUSES	44 (0.13 %)
TOWNHOUSES	55 (0.18 %)
TRADITIONAL DWELLINGS	108 (0.34 %)
INFORMAL DWELLINGS (SHACKS OR BACKYARD ROOMS)	4 304 (12.95 %)
OTHER	336 (1.02 %)
TOTAL	33 255 >> 100 % <<